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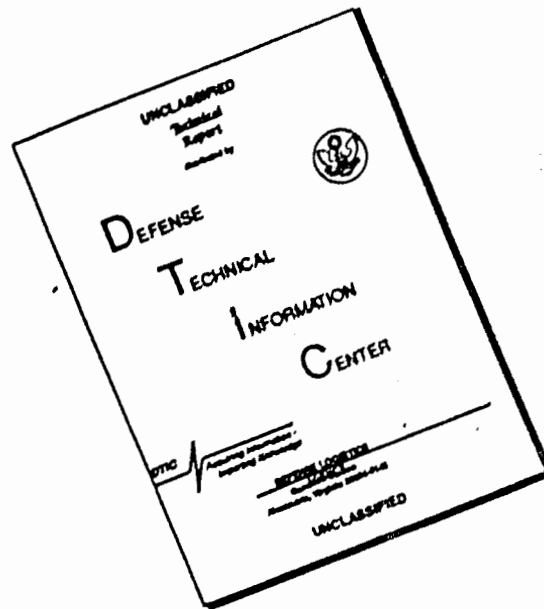
**53-5B PROPULSION SYSTEM
LIGHTWORTHINESS TEST REPORT**

WZ-11
LIFT FAN FLIGHT RESEARCH AIRCRAFT PROGRAM

CONTRACT NUMBER DA44-177-TC-715

GENERAL  ELECTRIC

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LIFT FAN FLIGHT RESEARCH AIRCRAFT PROGRAM

Contract DA 44-177-TC-715

X353-5B PROPULSION SYSTEM
FLIGHTWORTHINESS TEST REPORT
VOLUME II

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INTRODUCTION

This volume of the FWT report presents photographs with a brief identification of hardware condition and discrepancies found after completion of tests described in Specifications number 114 and 115.

Certificates of inspection are included. Clearance checks were identical with original assembly values.

Discussion and recommendations are included in Volume I.

HARDWARE REVIEW AFTER FWT

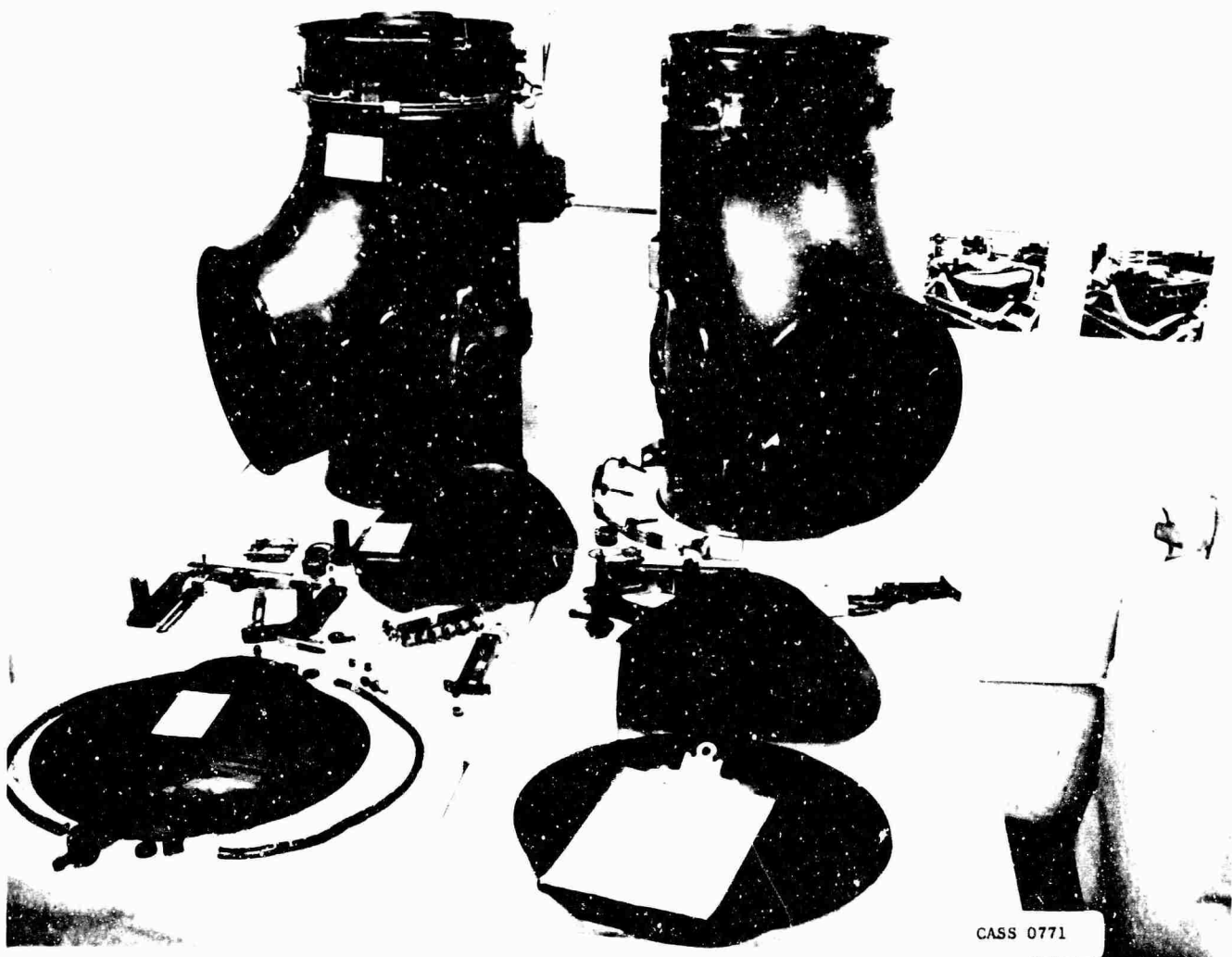


Figure II-1. Hardware Review
Diverter Valve Parts (CASS 0771)



Figure II-2. Hardware Review
Lift Fan Parts (CASS 0767)

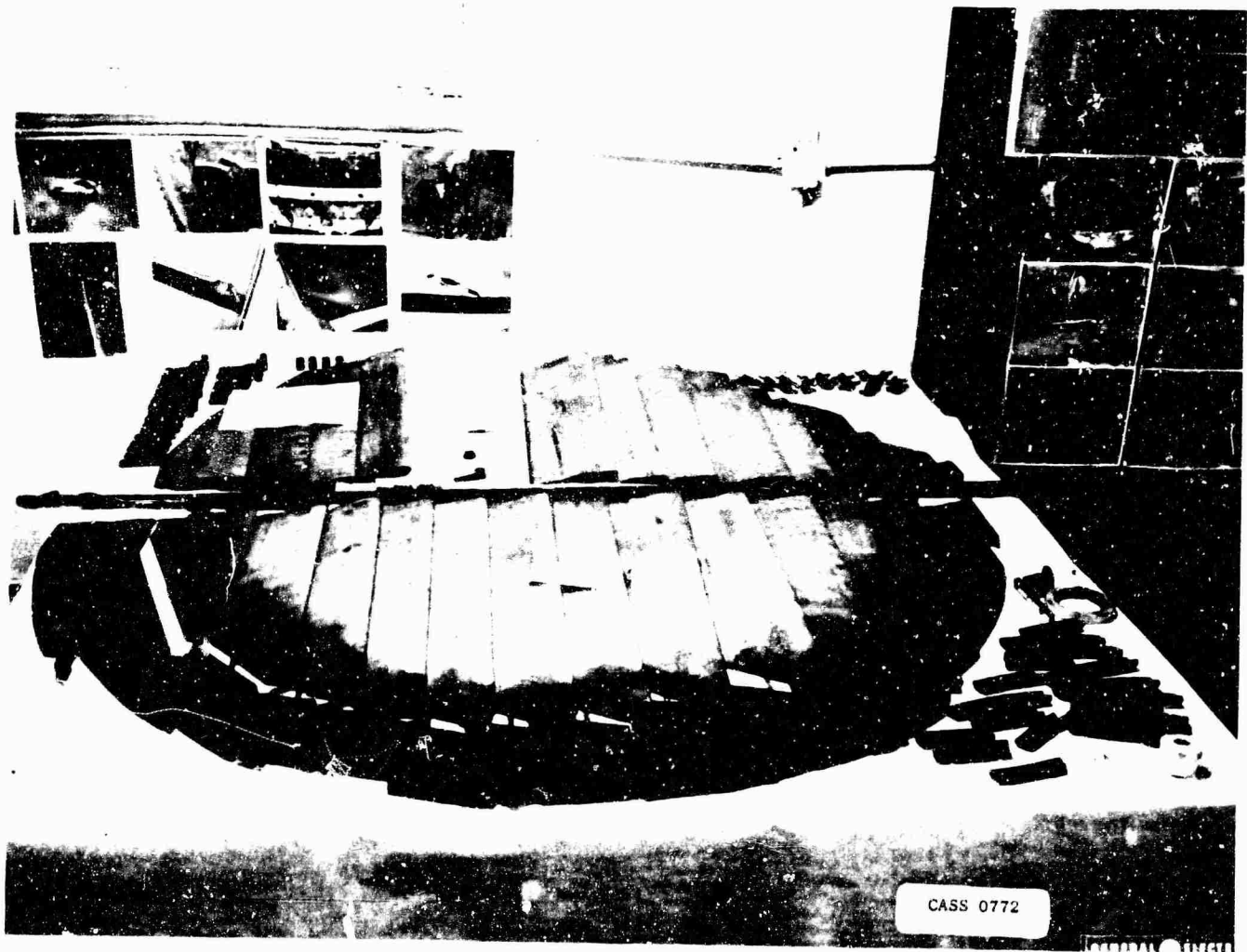


Figure II-3. Hardware Review
Lift Fan Parts (CASS 0772)

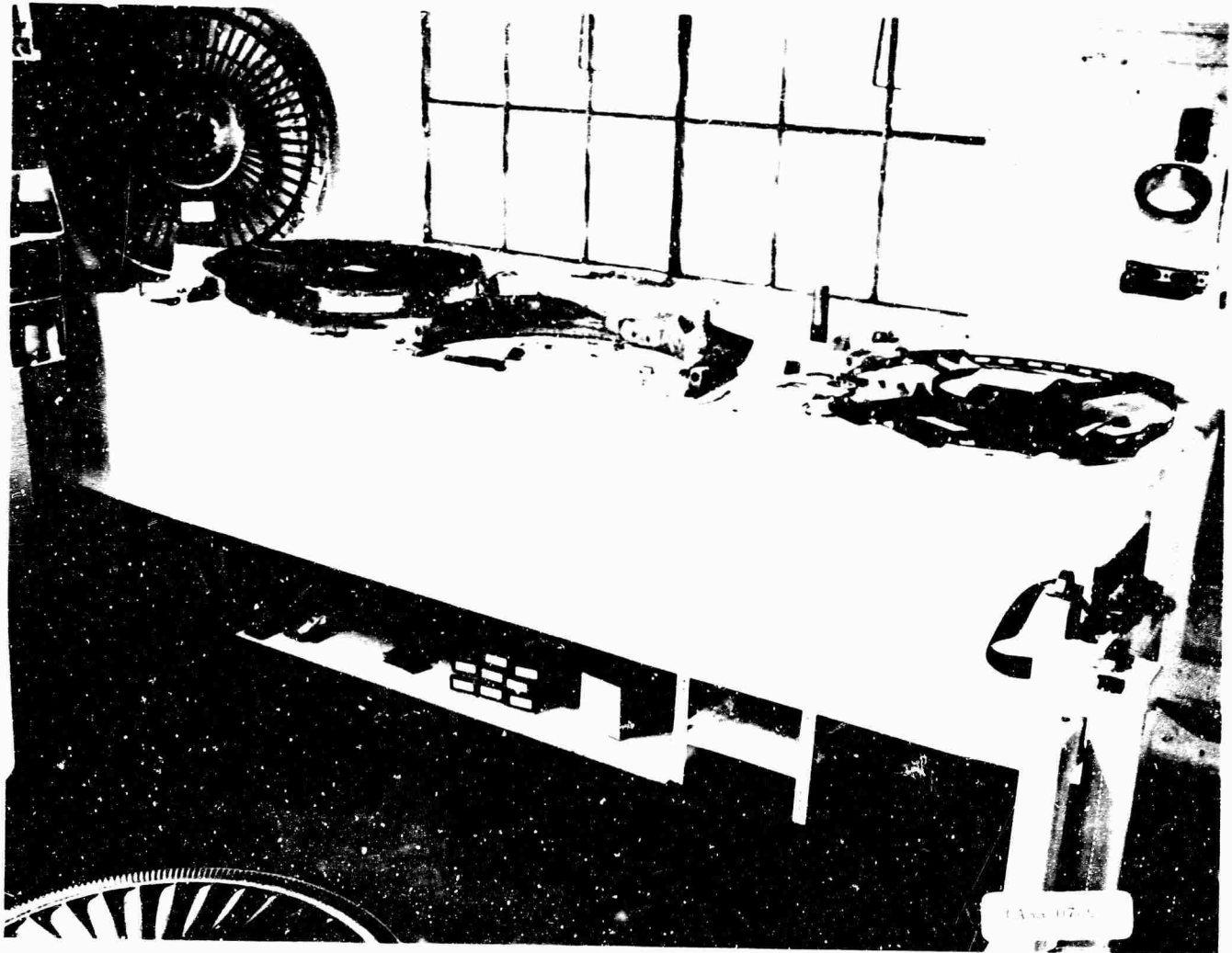


Figure II-4. Hardware Review
Pitch Fan Parts (CASS 0766)

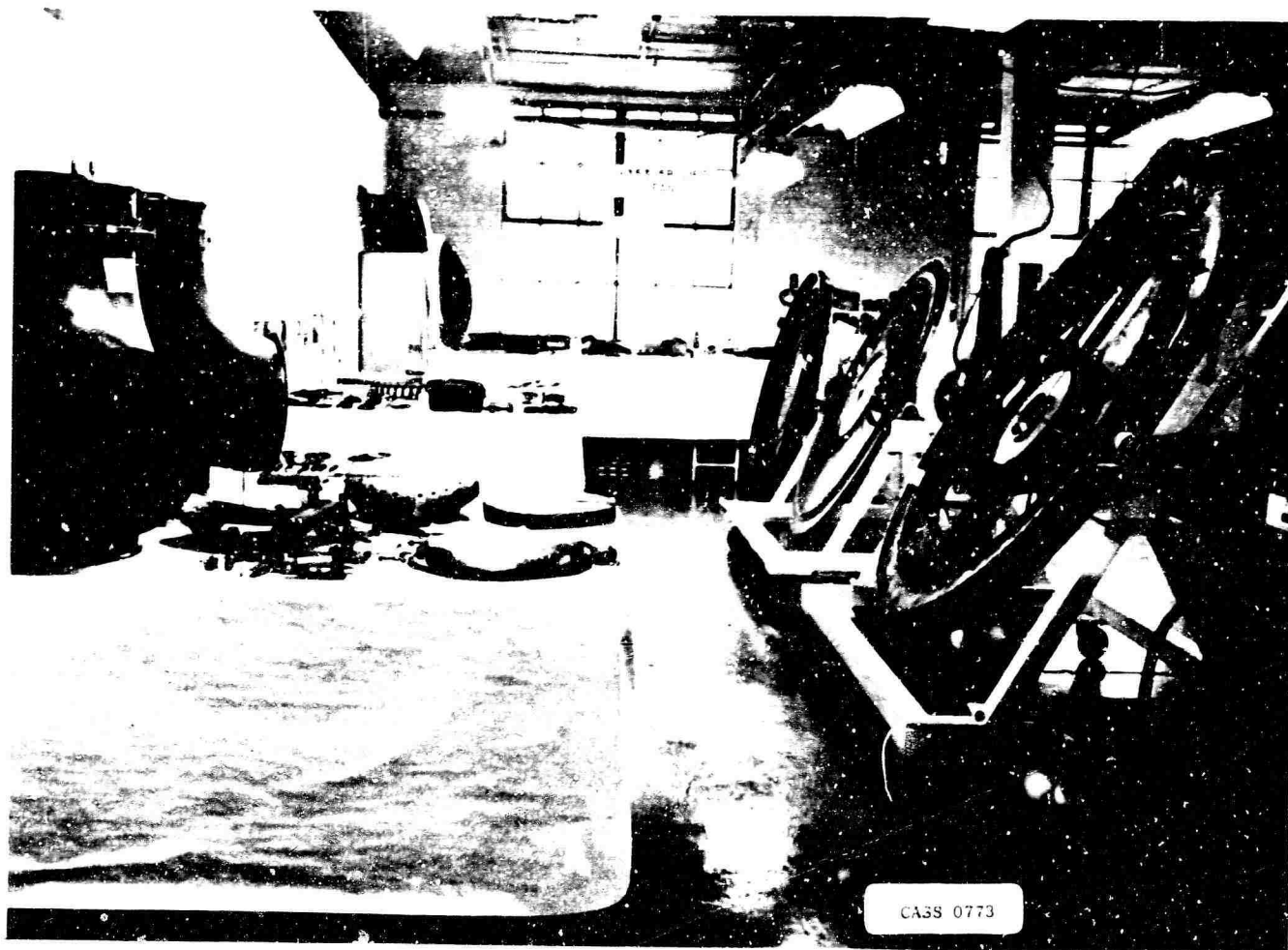


Figure II-5. Hardware Review
FWT Hardware Display After Cleaning
and Inspection (CASS 0773)

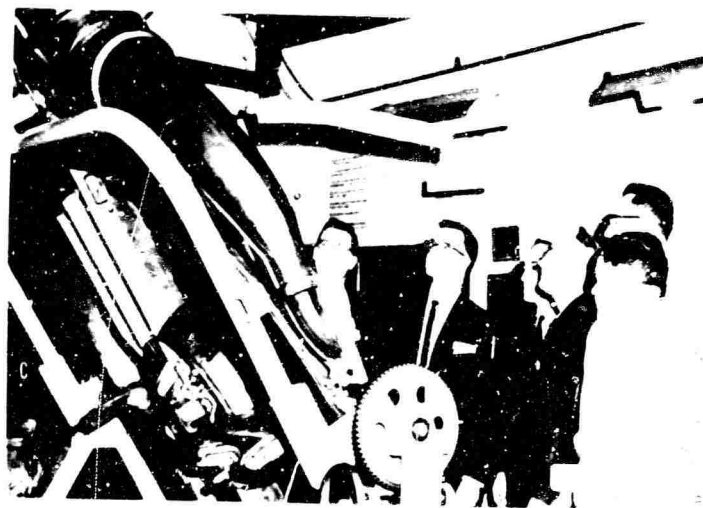


Figure II-6. Hardware Review
 A.B.&C. ARMY/FAA Personnel Reviewing Hardware
 Condition and Inspection Results (CASS 0780, 0777, 0779)

DISCREPANCIES

DIVERter VALVE

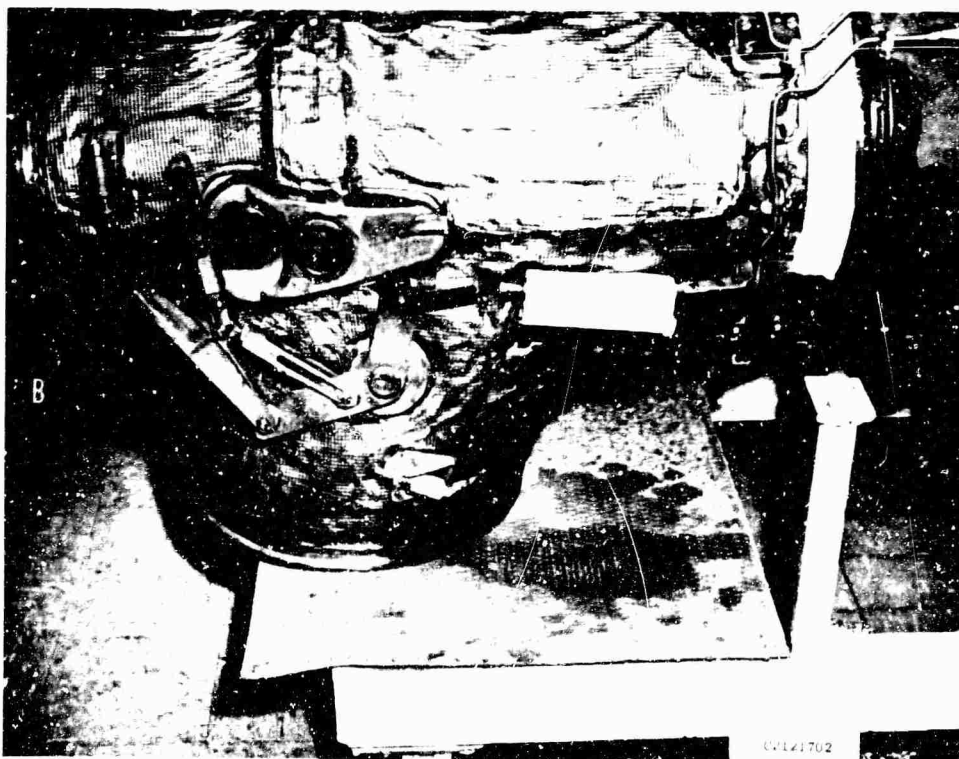
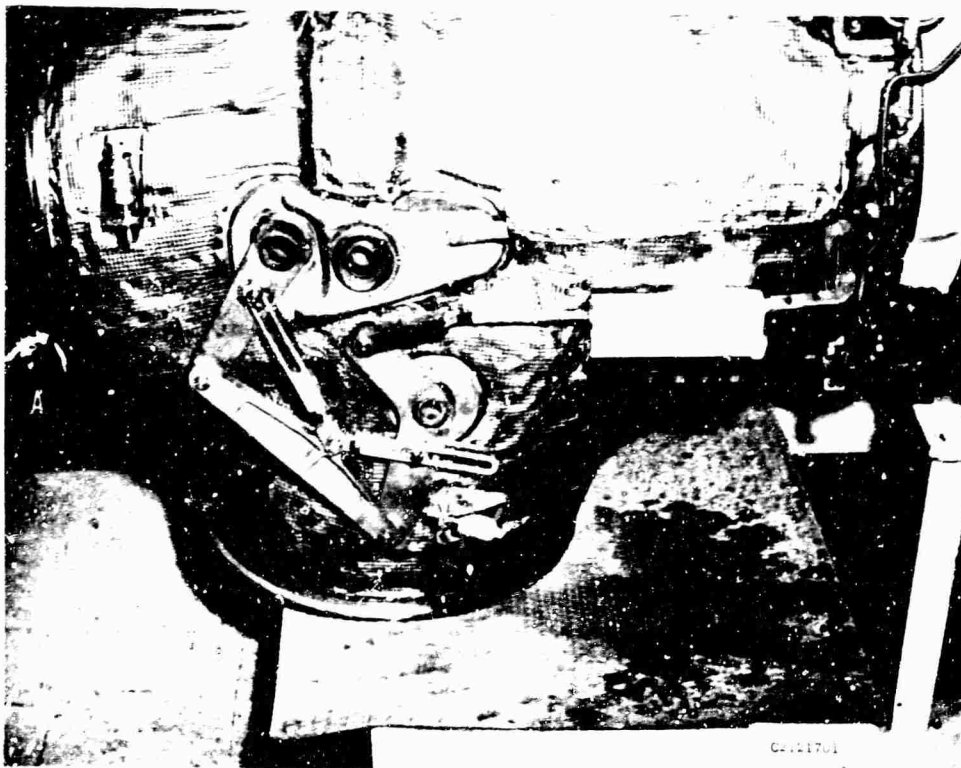


Figure II-7. Diverter Valve Assembly
 Diverter Valve After Completing FWT
 A. Buckled Push Rod (Lift Mode) (C2121701)
 B. Buckled Push Rod (Cruise Mode) (C2121702)
 Note: Actuation. Not Official FWT Part

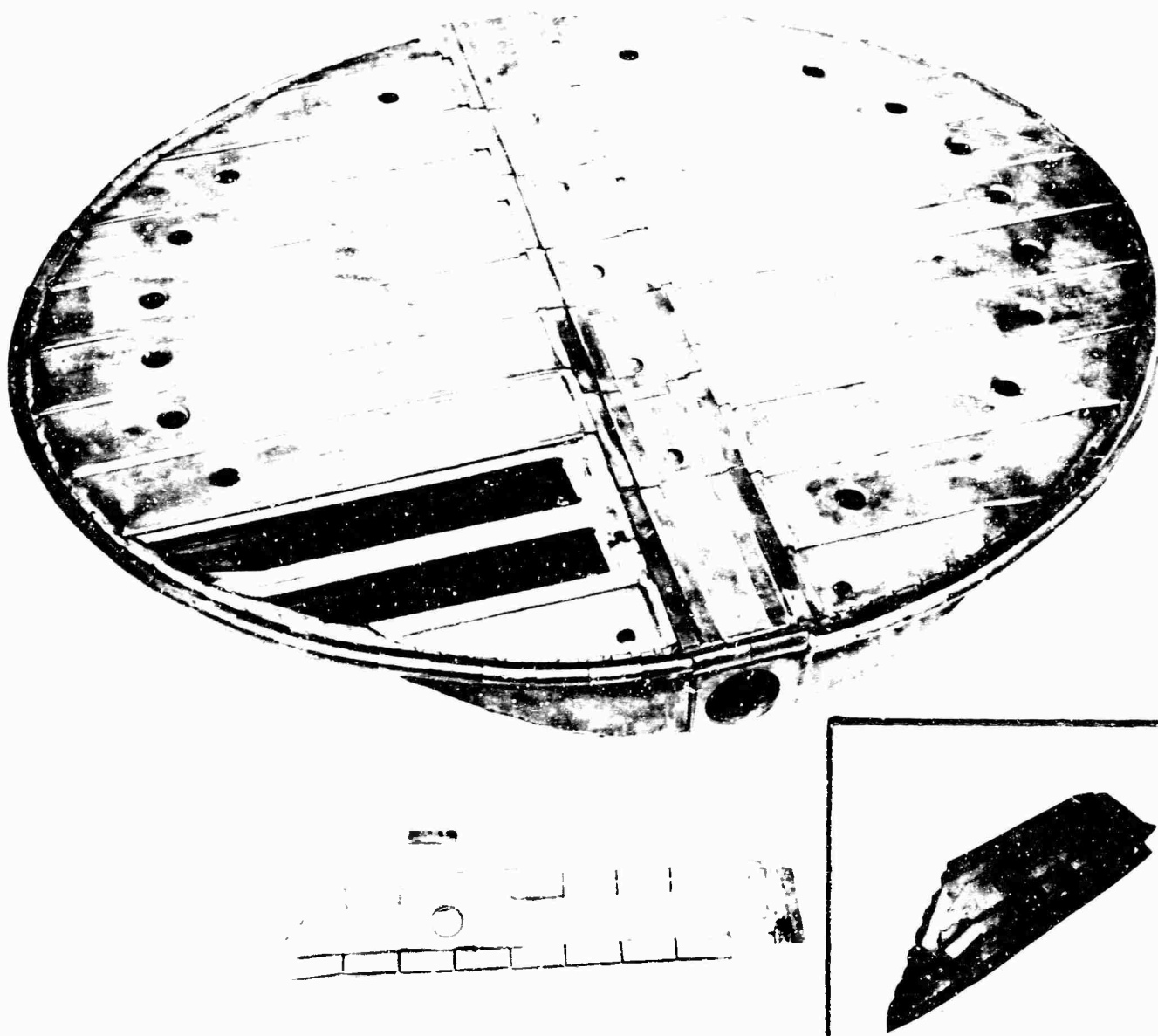
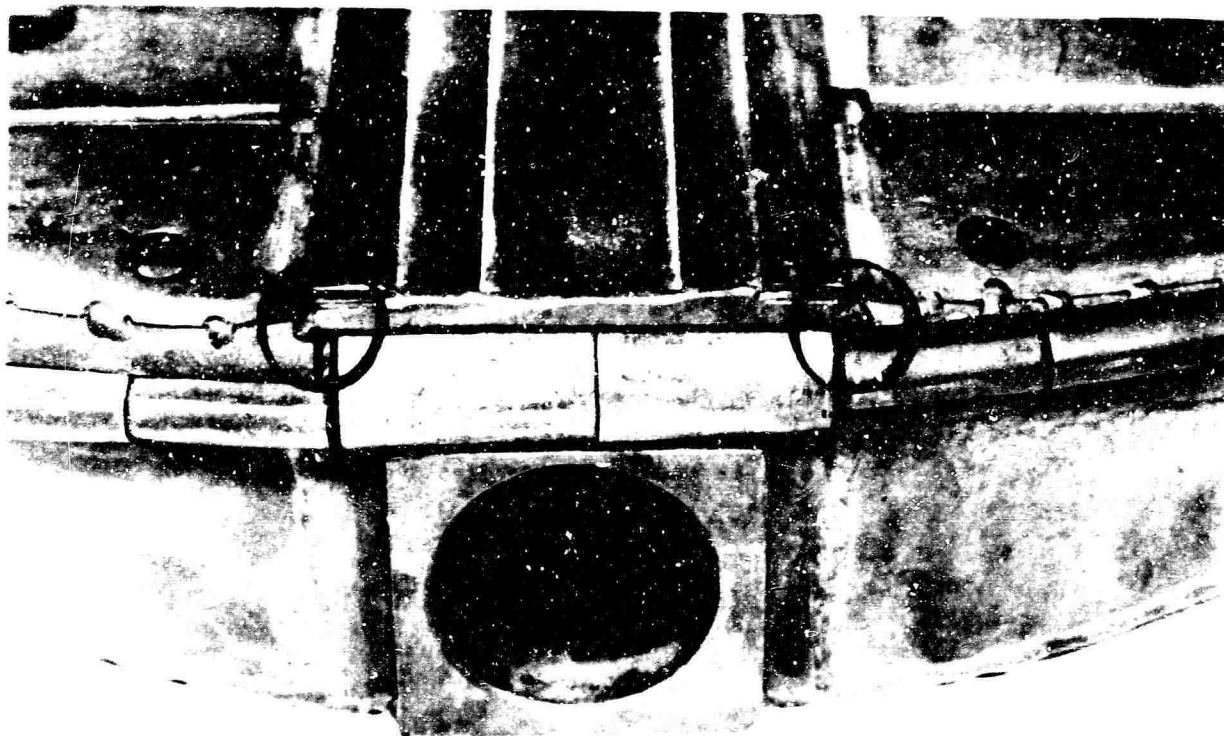


Figure II-8. Door
Heat Shield Failure (Buckled Into Air Stream Because of
Insufficient Assembly Clearance to Permit Thermal Growth)



CL120403

Figure II-9. Doors
Thermal Weld Cracks (C 2120403)

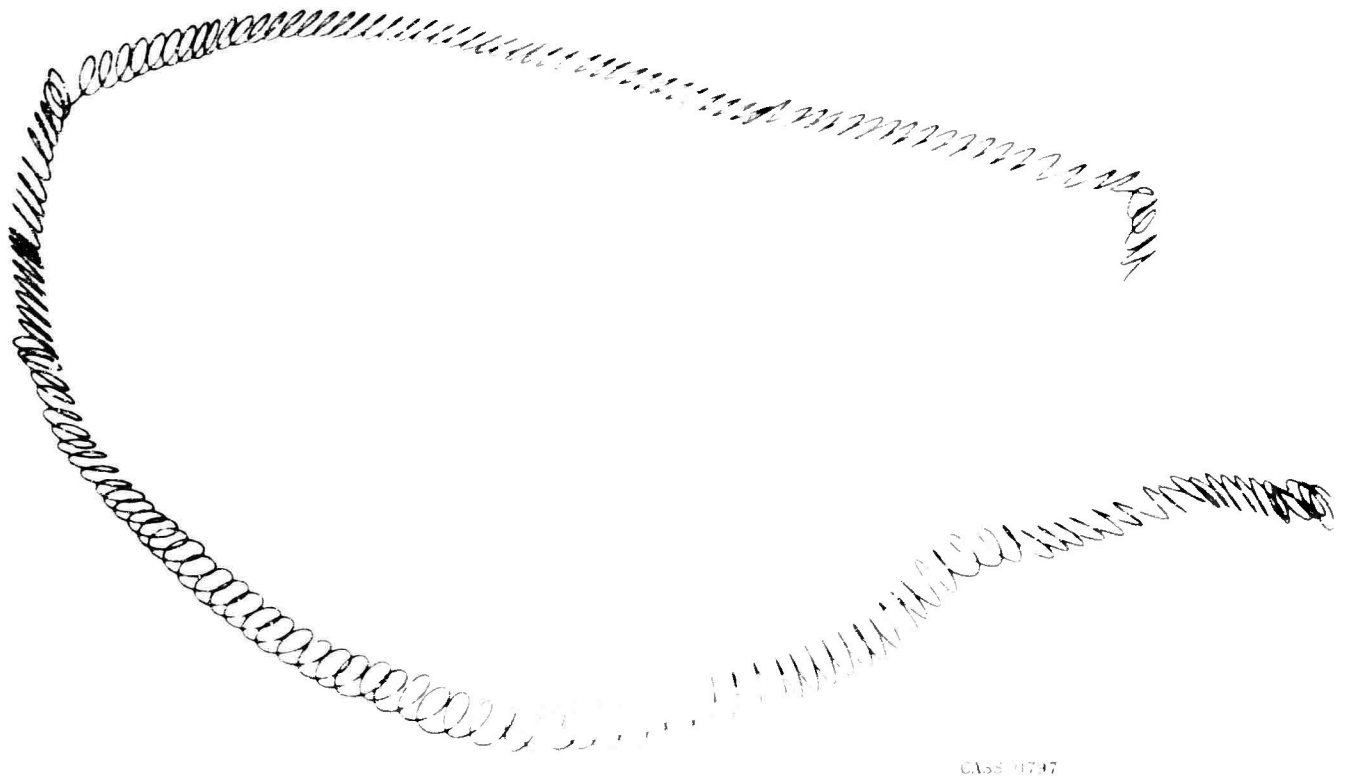


Figure II-10. Door
Seal Spring Deformed By Improper Disassembly (CASS 0797)

DISCREPANCIES

LIFT FAN

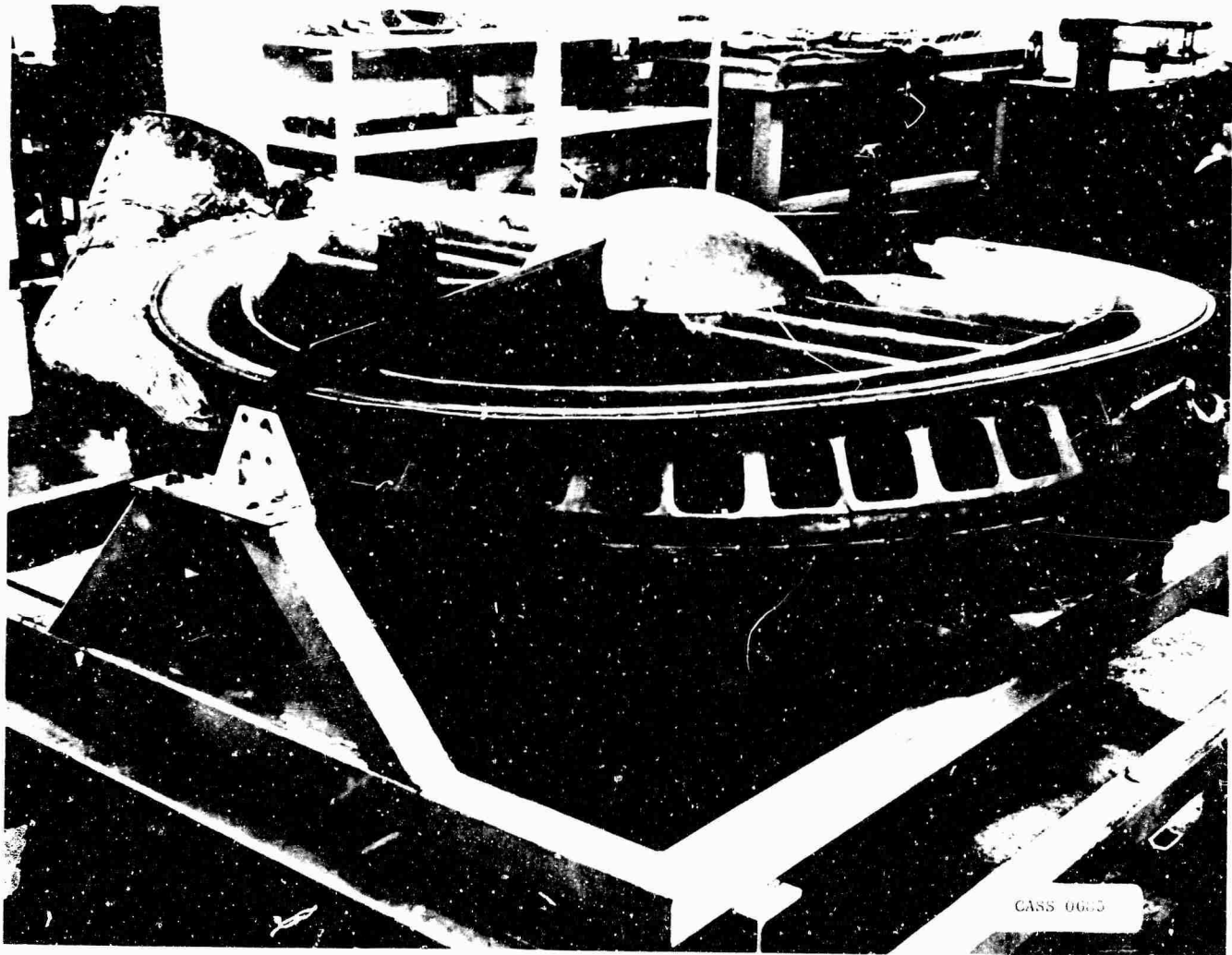


Figure II-11. Lift Fan Assembly
Lift Fan After Completing FWT (CASS 0685)

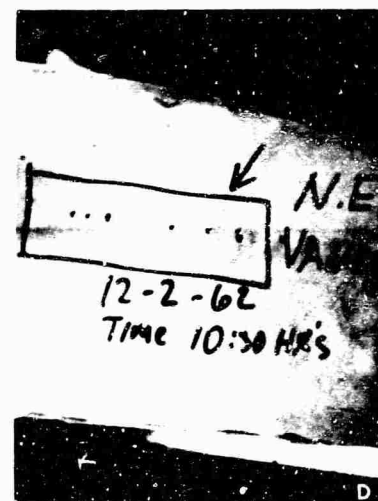
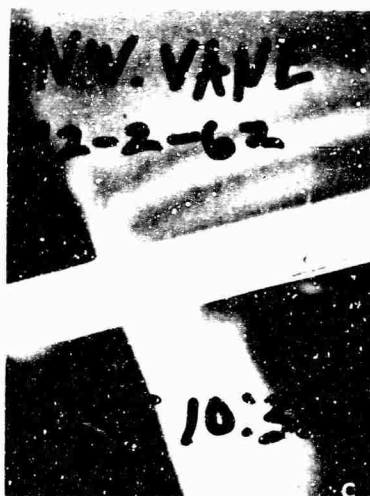
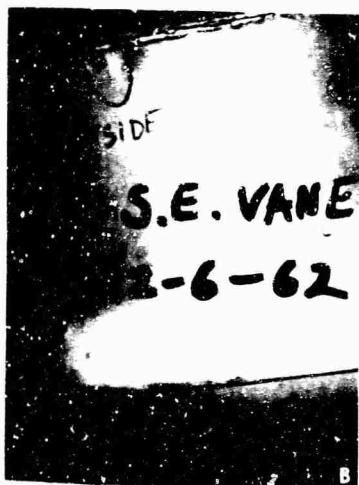
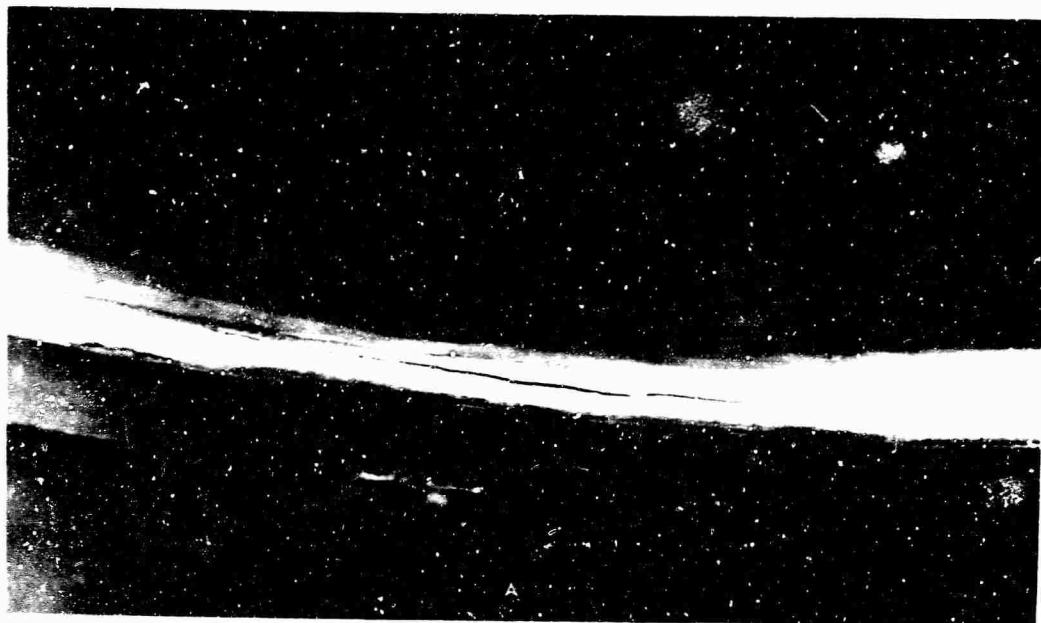
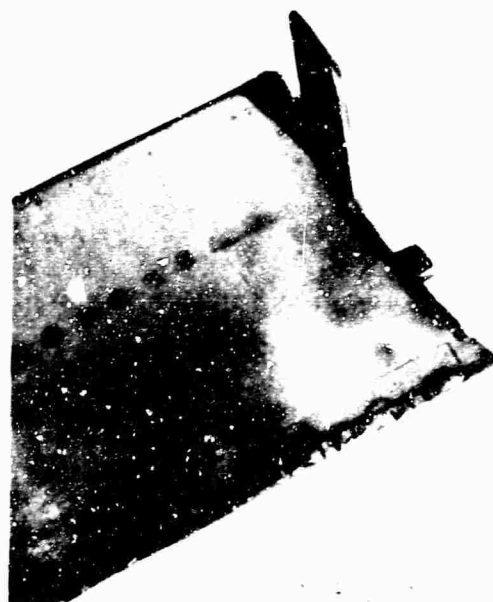
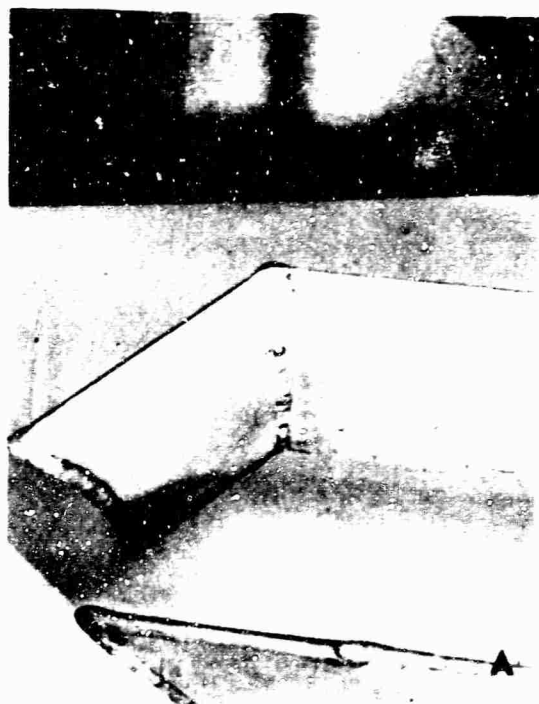


Figure II-12. Inlet Vane

- A. Typical Leading Edge Crack
- B. Typical Trailing Edge Crack
- C. Stop Drill Repair - Leading Edge
- D. Typical Spot Weld Cracking; Stop Drill Repair
(Note Propagation) (C 2111534 plus 3 Polaroids)



B

C



Figure II-13. Inlet Vane Repairs
 A. Leading Edge Welds
 B. Trailing Edge Welds
 C. Spot Weld Repair (3 Polaroids)



Figure II-14. Front Frame
 A. Dent In Corner Scroll Gas Seal (CASS 0718)
 B. Tear In Internal Insulation Blanket (CASS 0720)
 Probable Cause: Migrating Carrier Bolt Head

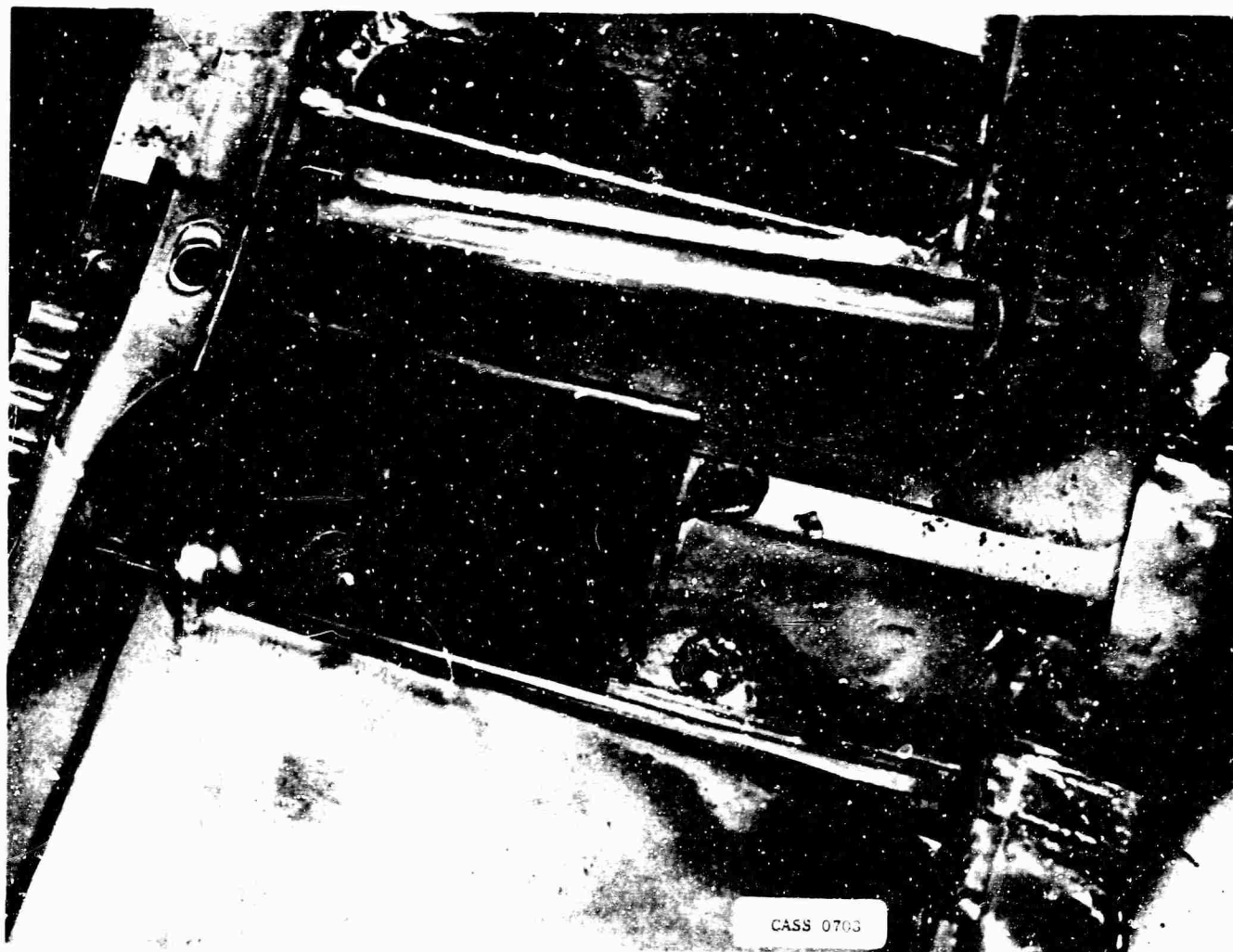


Figure II-15. Front Frame
Failed Carrier Bolt Head From Aft* Side Of Rotor Found
At Disassembly Lodged Under Edge Of Scroll Gas Seal
* Determined At Metallographic Inspection (CASS 0708)



Figure II-16. Scroll
Finger Seal Slipped Off Scroll Bead
(No Gas Leakage) (CASS 0716)

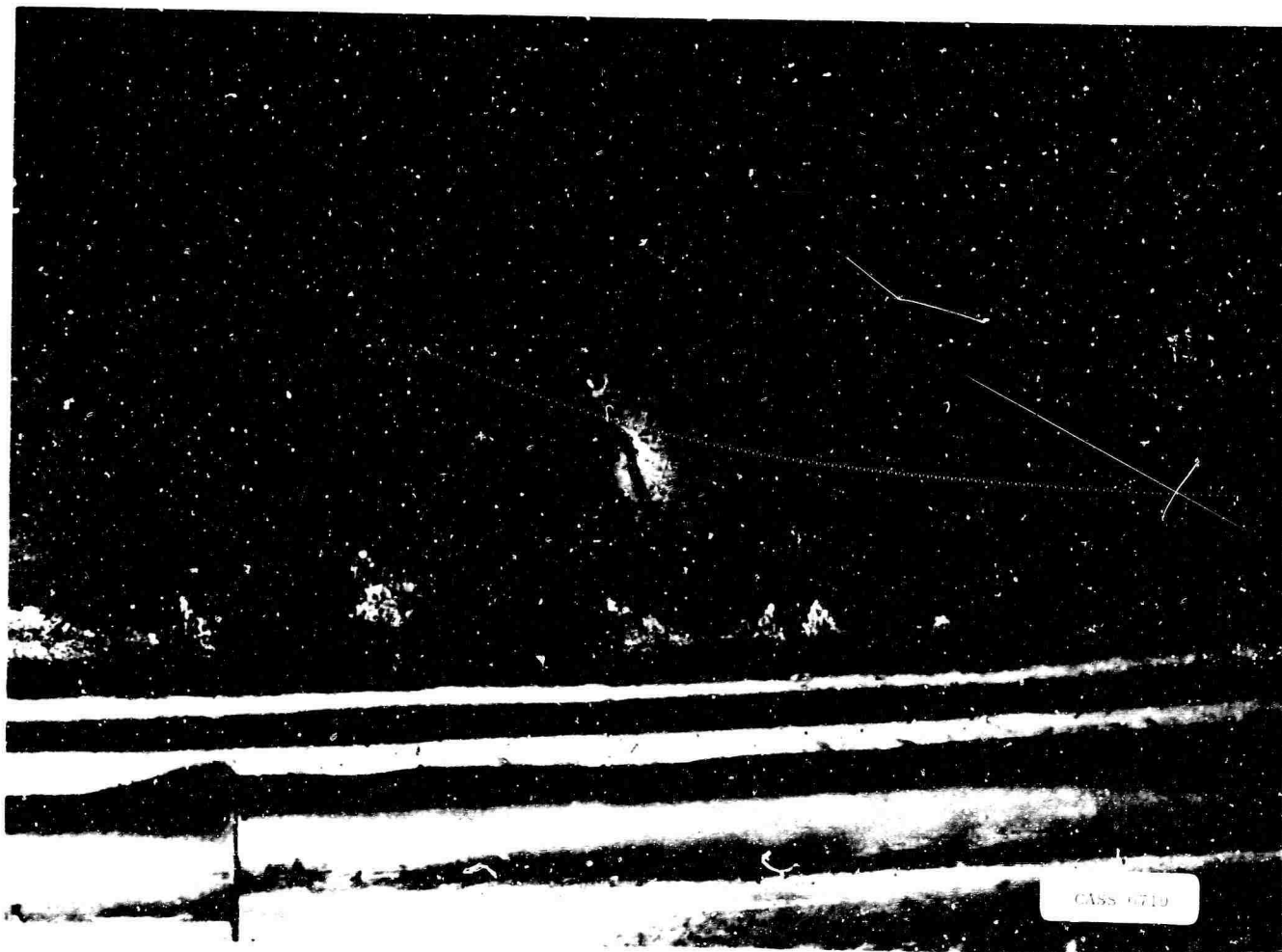


Figure II-17. Scroll
Dent In Nozzle
Probable Cause: Bolt Head Figure II-22 (CASS 0719)

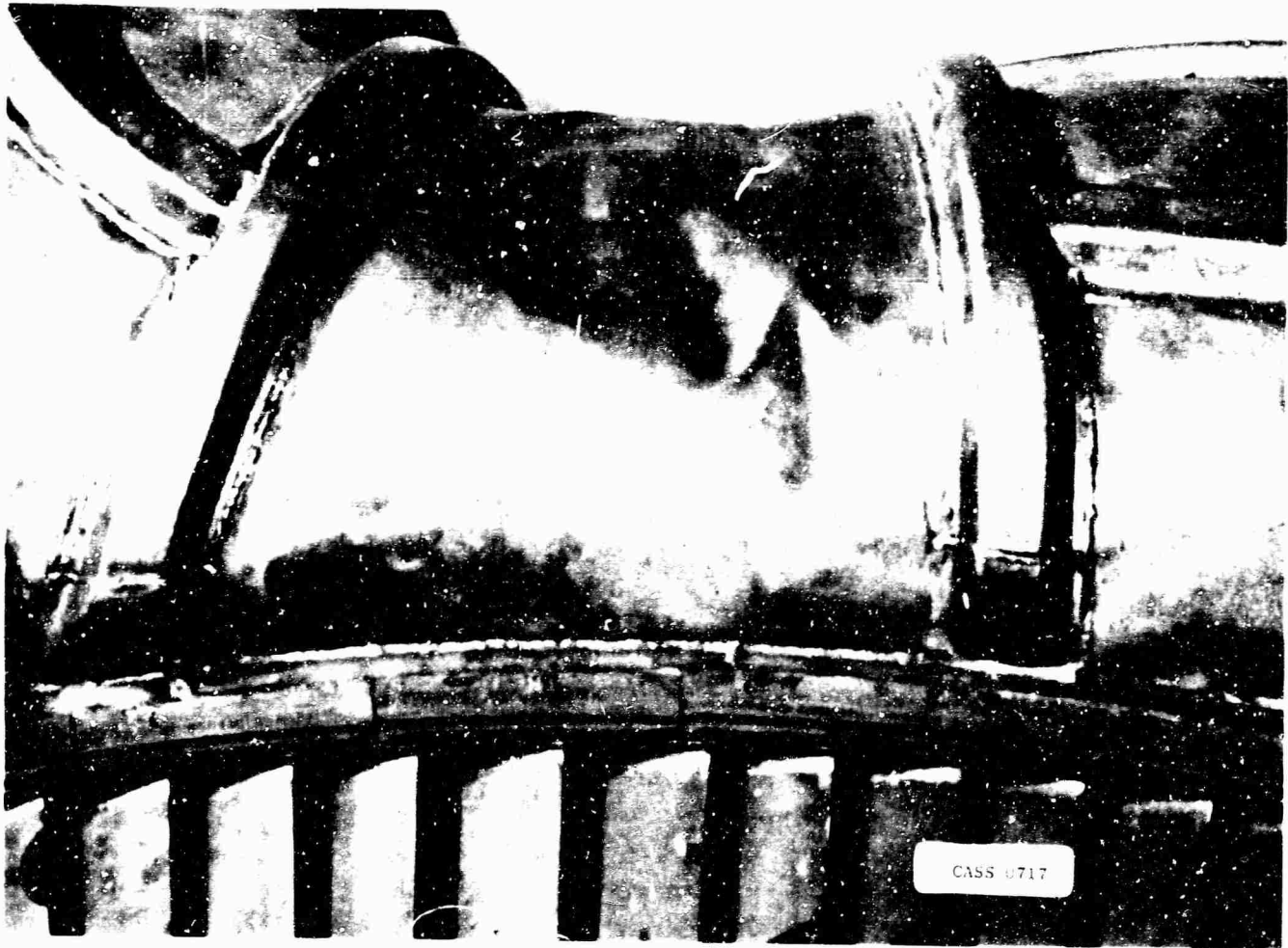


Figure II-18. Scroll
Thermal Buckle In Scroll Divider Region (CASS 0717)

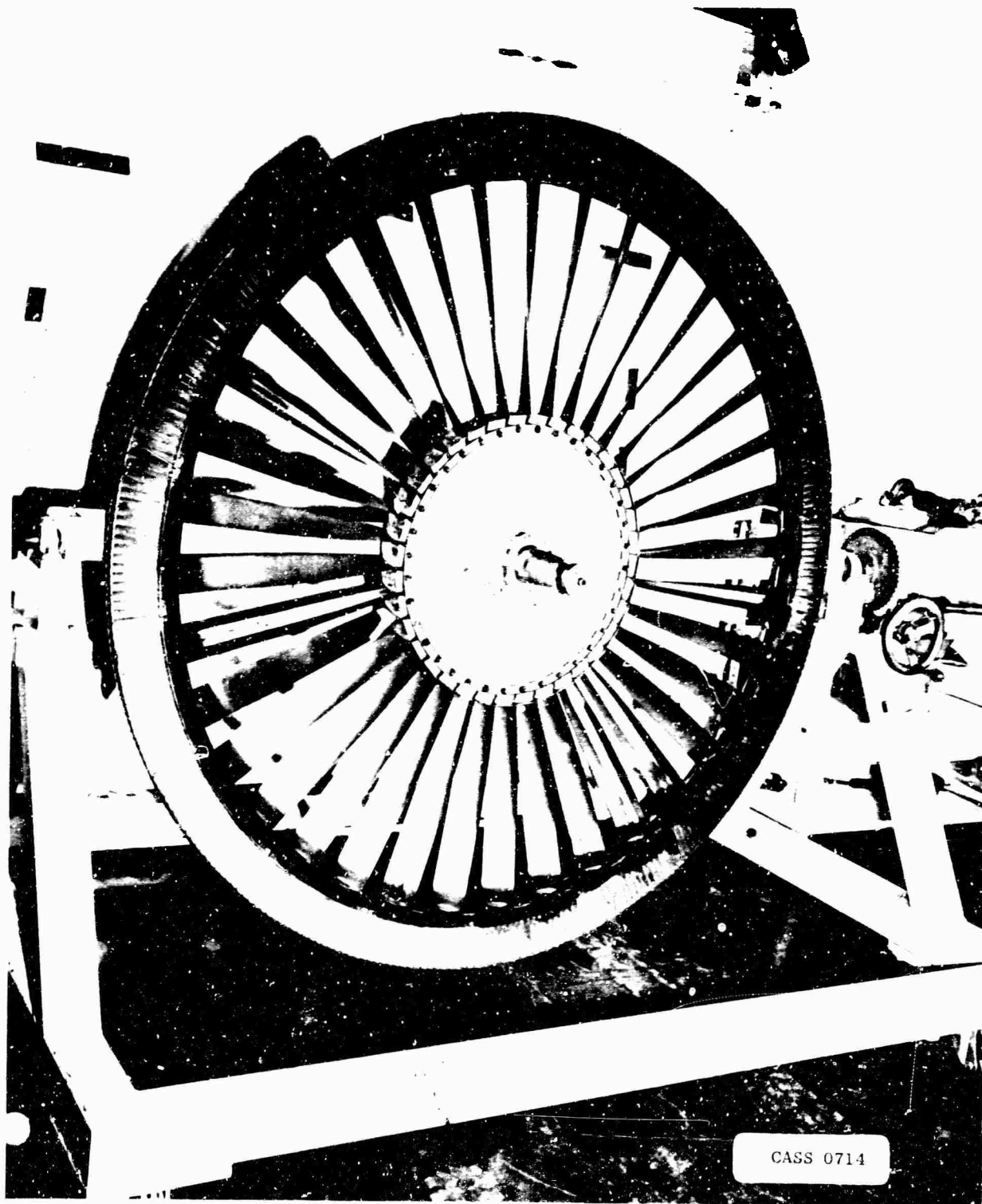


Figure II-19. Rotor
Rotor Sub-Assembly Prior To Disassembly
After Completing FWT (CASS 0714)

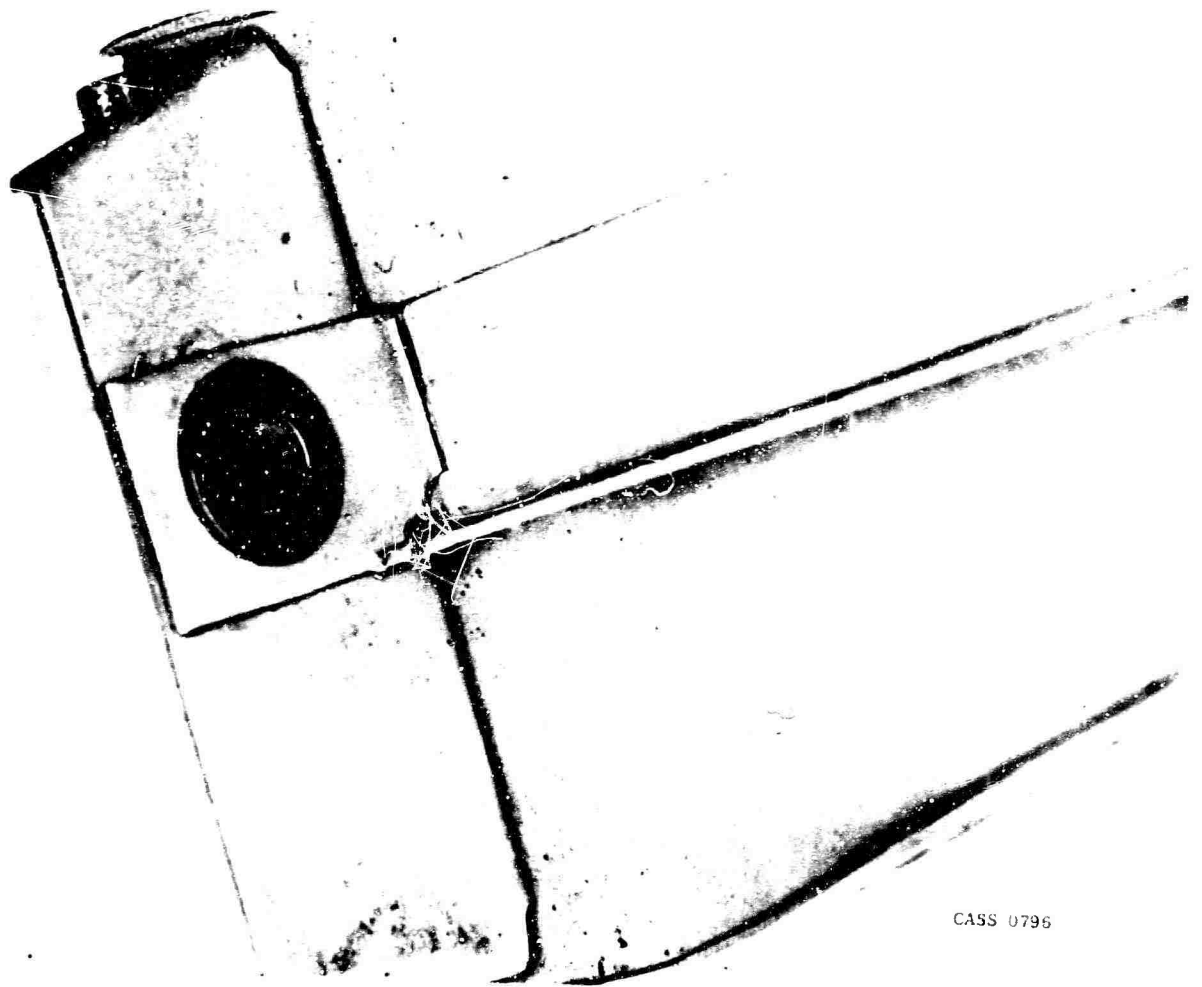


Figure II-20. Rotor
Fatigue Crack In Blade Platform
Cause: Crack Initiated At Sharp Corner Of Groove
Machined In Platform Stifferer To Provide
Clearance For The Rotor Retainer Ring (CASS 0796)



Figure II-21. Rotor

- A. Carrier Bolt Head Missing : Forward Side
Carrier 25, Adjacent to Carrier 32. (CASS 0710)
 - B. Two Carrier Bolt Heads And Tab Missing: Aft Side
Between Carriers 13 and 23. (CASS 0706)
- Probable Cause: Defective Bolts



C62122738

Figure II-22. Rotor
(X10 Mag.)
Carrier Bolt Head Found In Front Frame
(See Figure II-15)
Note: From Aft Side Of Rotor Per Metallographic
Inspection

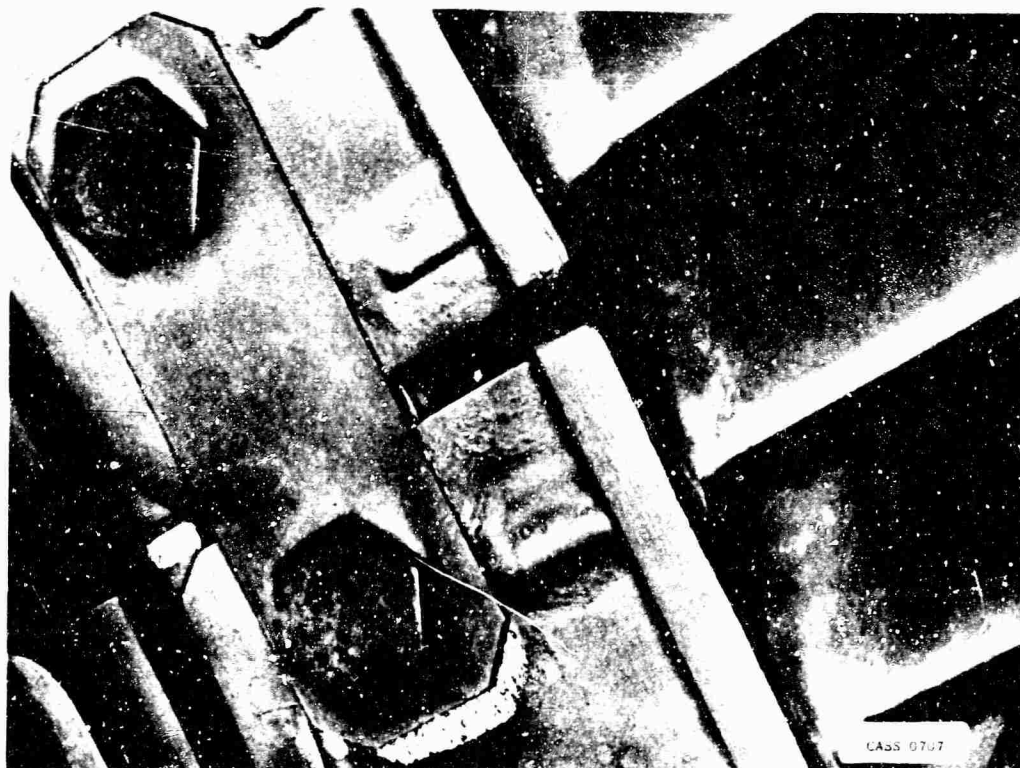


Figure II-23. Rotor

- A. Galling On Carrier 05 (Adjacent To Carrier 07)
On Forward Side Of Rotor (CASS 0707)
- B. Galling On Carrier 05 (Adjacent To Carrier 07)
On Aft Side Of Rotor (CASS 0705)

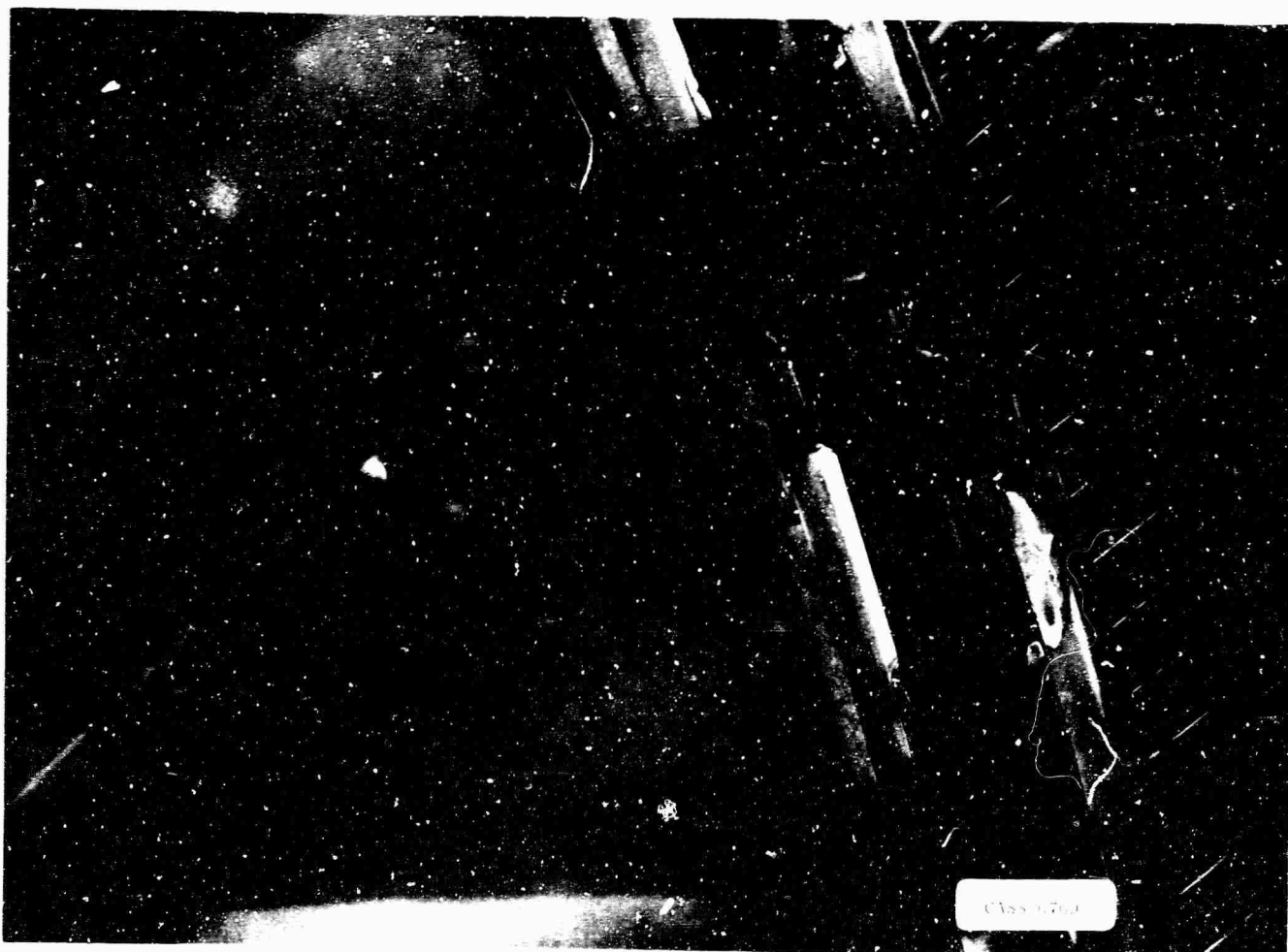


Figure II-24. Rotor
Fretting On Air Seal Carrier 05 (Adjacent To
Carrier 07) (CASS 0709)
Note: Missing Section Of Aft Torque (Buckle Area)
And Opposite Break In Forward Band



CASS 0793

Figure II-25. Rotor
Torque Band Segment
Band Cut During Test As Design Change

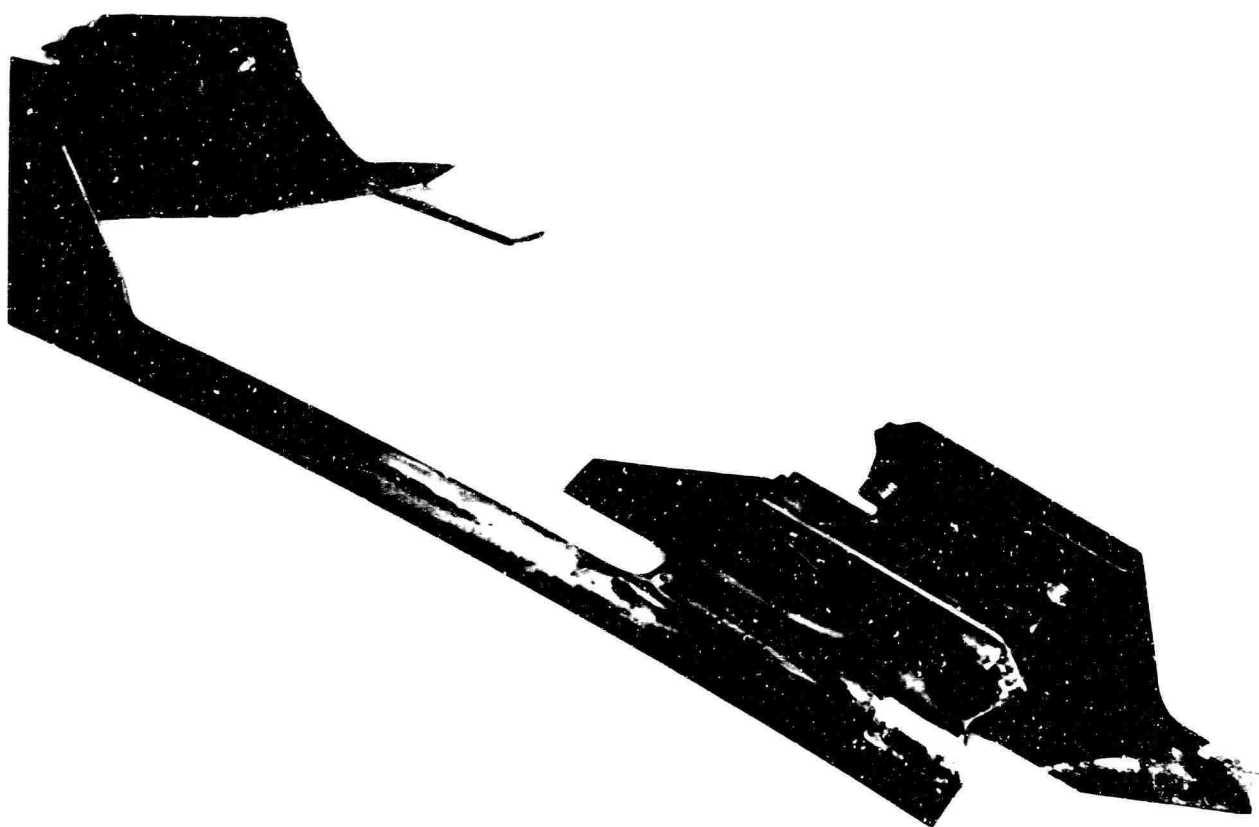


Figure II-26. Rotor
Forward Torque Band Break Opposite Buckle In Aft Band
(Noted After Completion Of 10th Endurance Cycle)
Note: Cover and Band Fretting (CASS 0792)

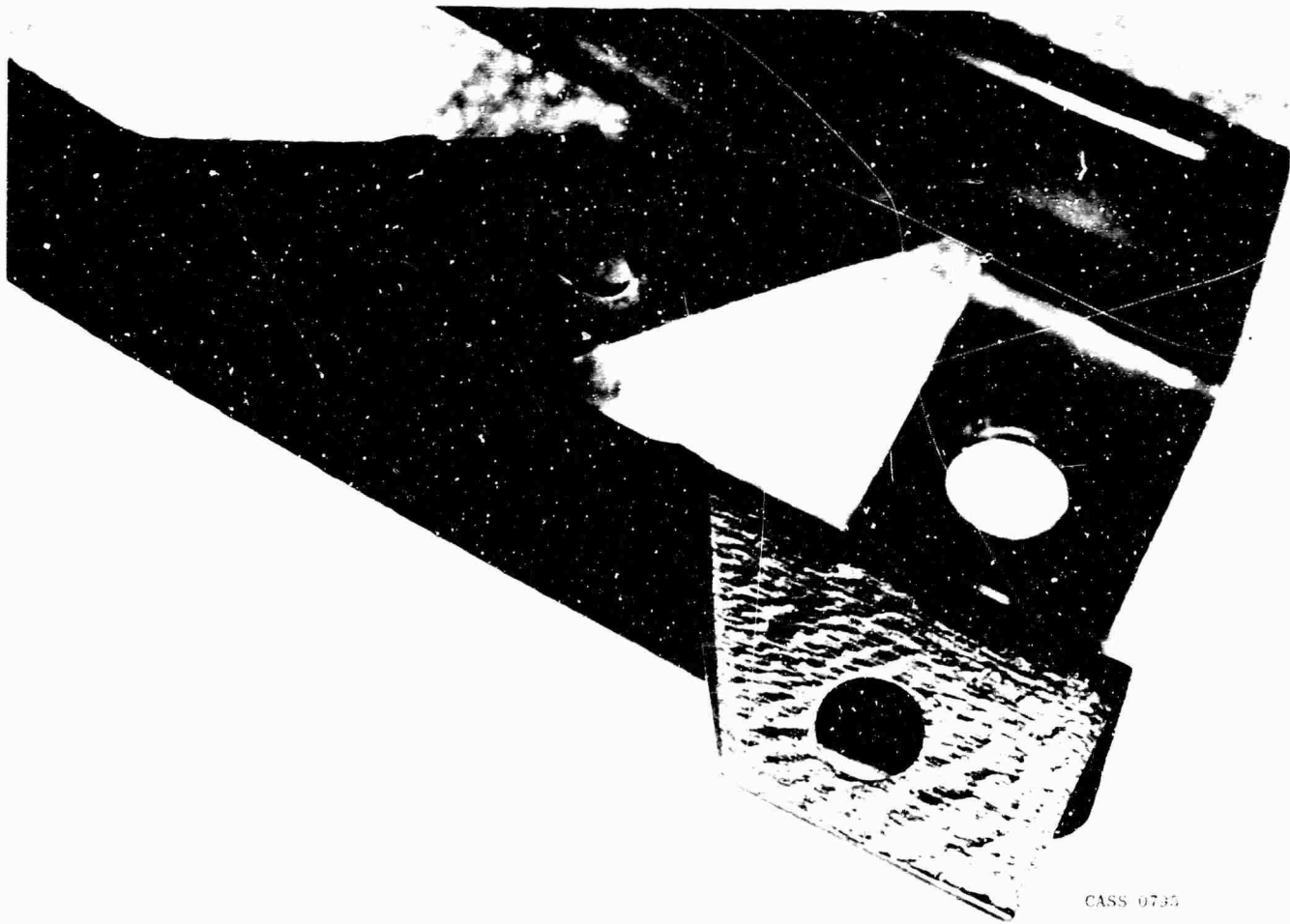


Figure II-27. Rotor
Seal Attachment Ear Fretting (Aft Side Of Rotor)
At Joint Where Forward Band Broke (CASS 0795)

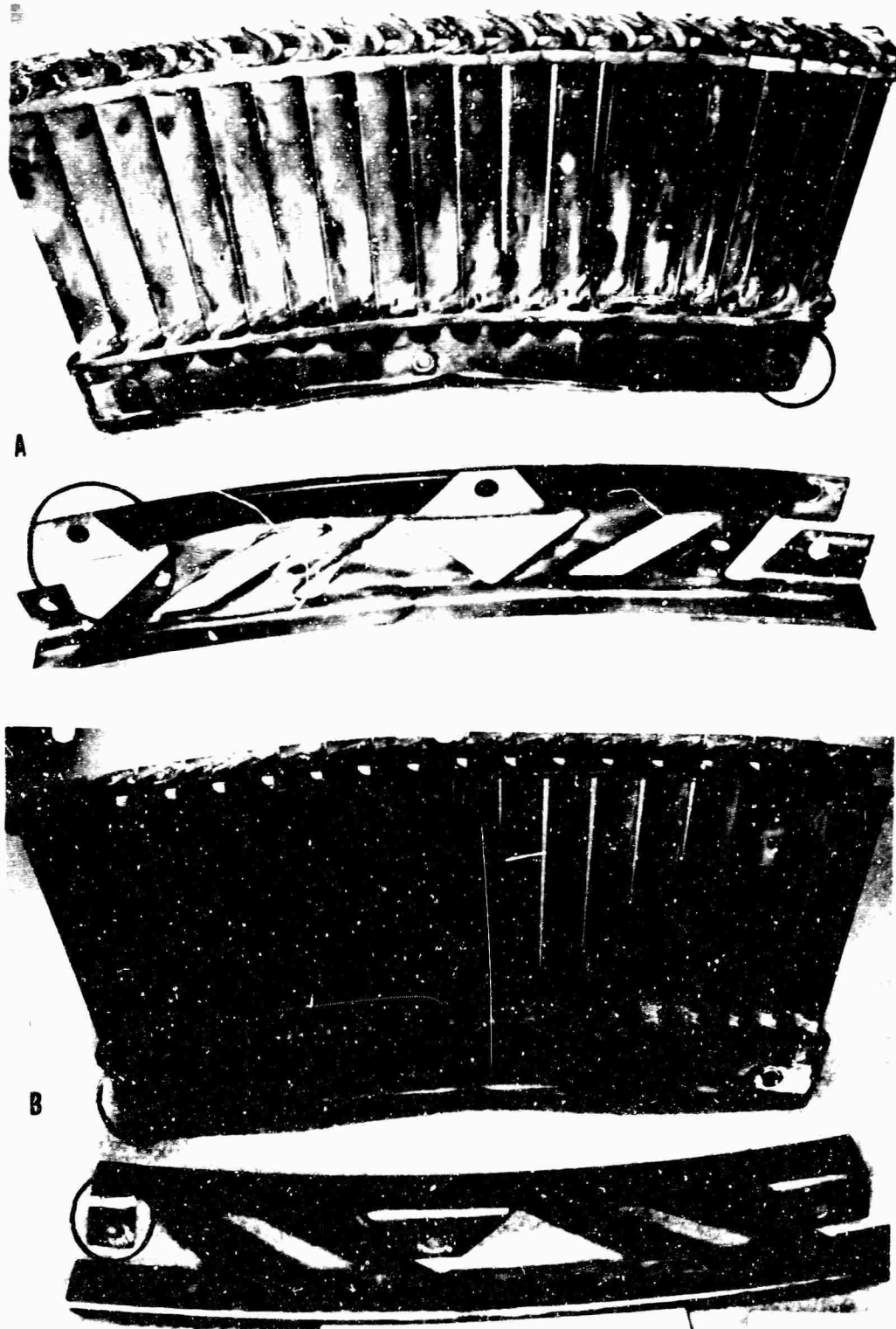


Figure II-28. Rotor
 A. Carrier S/N 05 Forward Side (CASS 0722)
 B. Carrier S/N 05 Aft Side (CASS 0723)
 Note: Seal Galling, Fretting, Airfoil Gouge
 Physical Damage To All Carriers Caused By
 Migration Of Carrier Tab (Figure II-46)

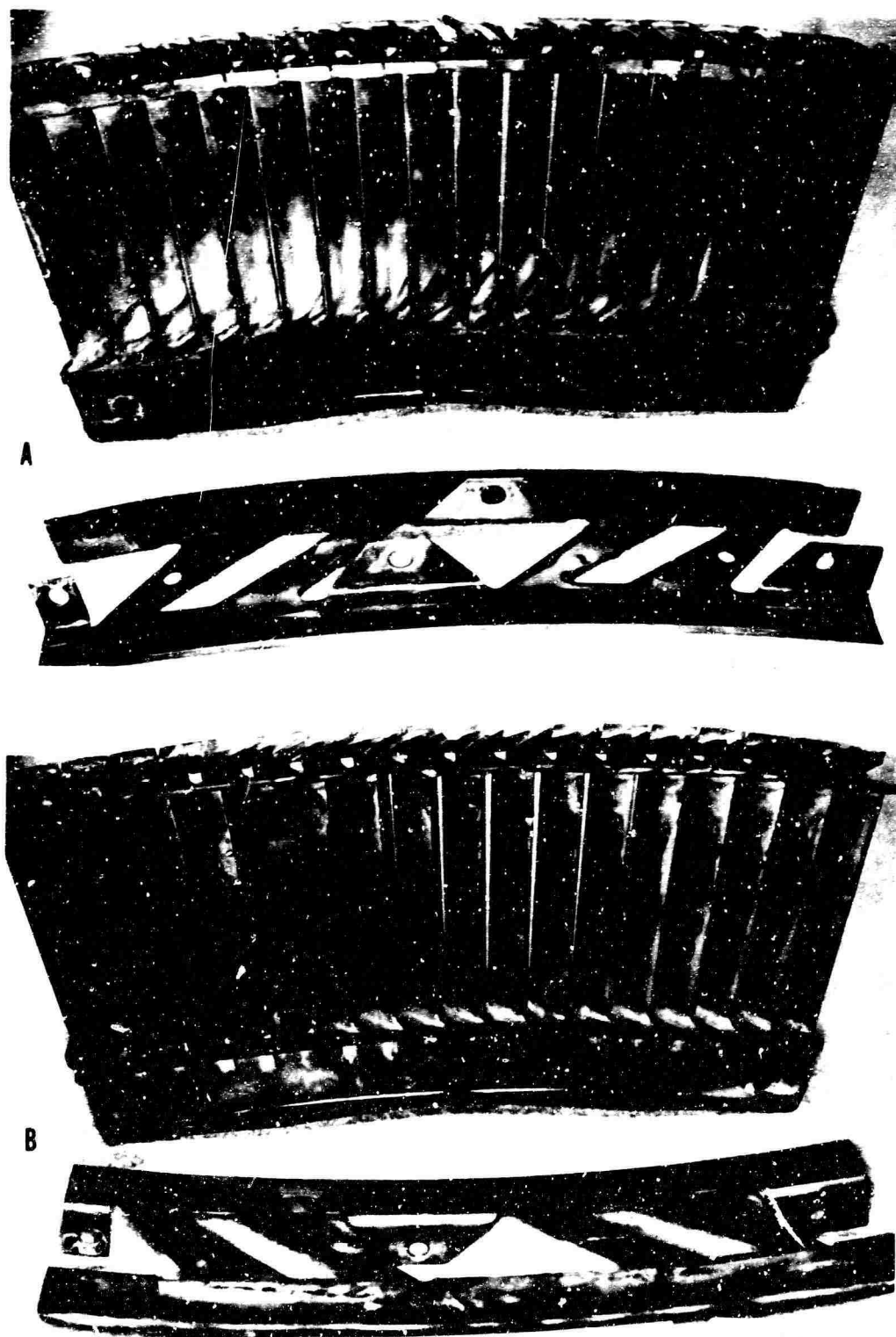


Figure II-29. Rotor

A. Carrier S/N 007 Forward Side (CASS 0725)

B. Carrier S/N 007 Aft Side (CASS 0724)

Note: Shroud Tear, Airfoil Punctures

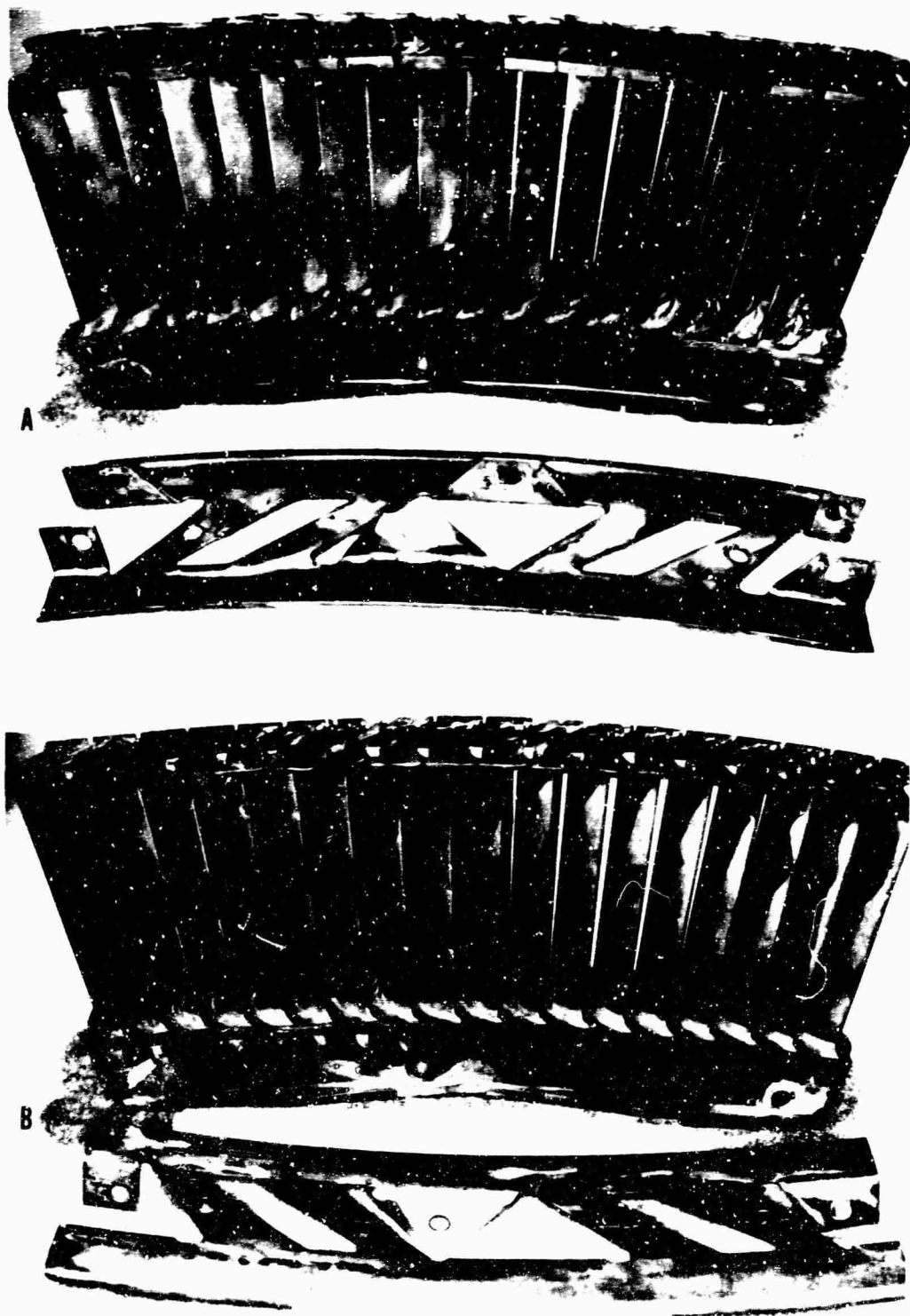


Figure II-30. Rotor
 A. Carrier S/N 08 Forward Side (CASS 0750)
 B. Carrier S/N 08 Aft Side (CASS 0749)
 Note: Fretting

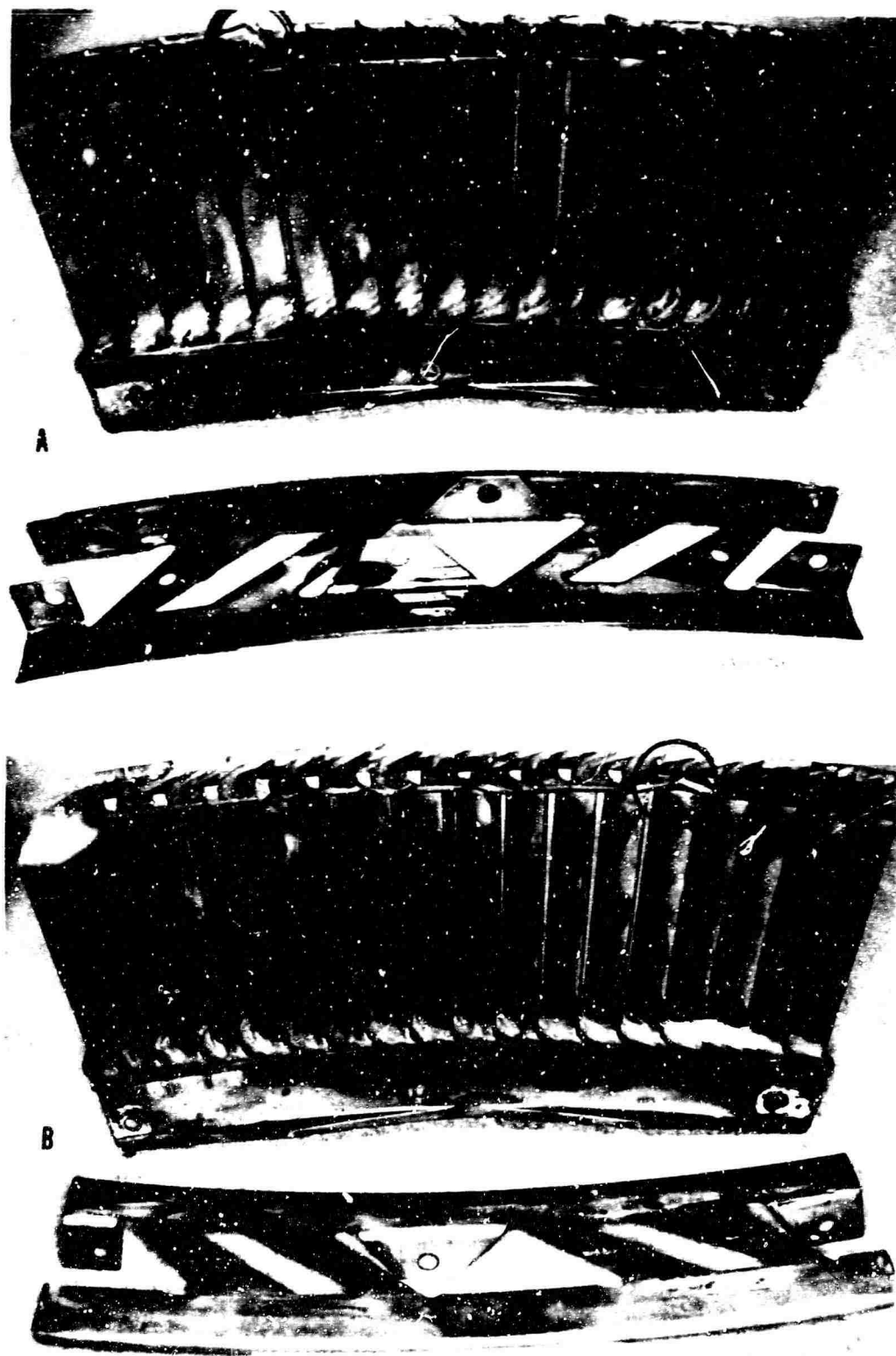


Figure II-31. Rotor

A. Carrier S/N 10 Forward Side (CASS 0726)

B. Carrier S/N 10 Aft Side (CASS 0727)

Note: Shroud Separation, Bent Airfoils



Figure II-32. Rotor
 A. Carrier S/N L-13 Forward Side (CASS 0746)
 B. Carrier S/N L-13 Aft Side (CASS 0763)
 Note: Dents, Seal Fretting

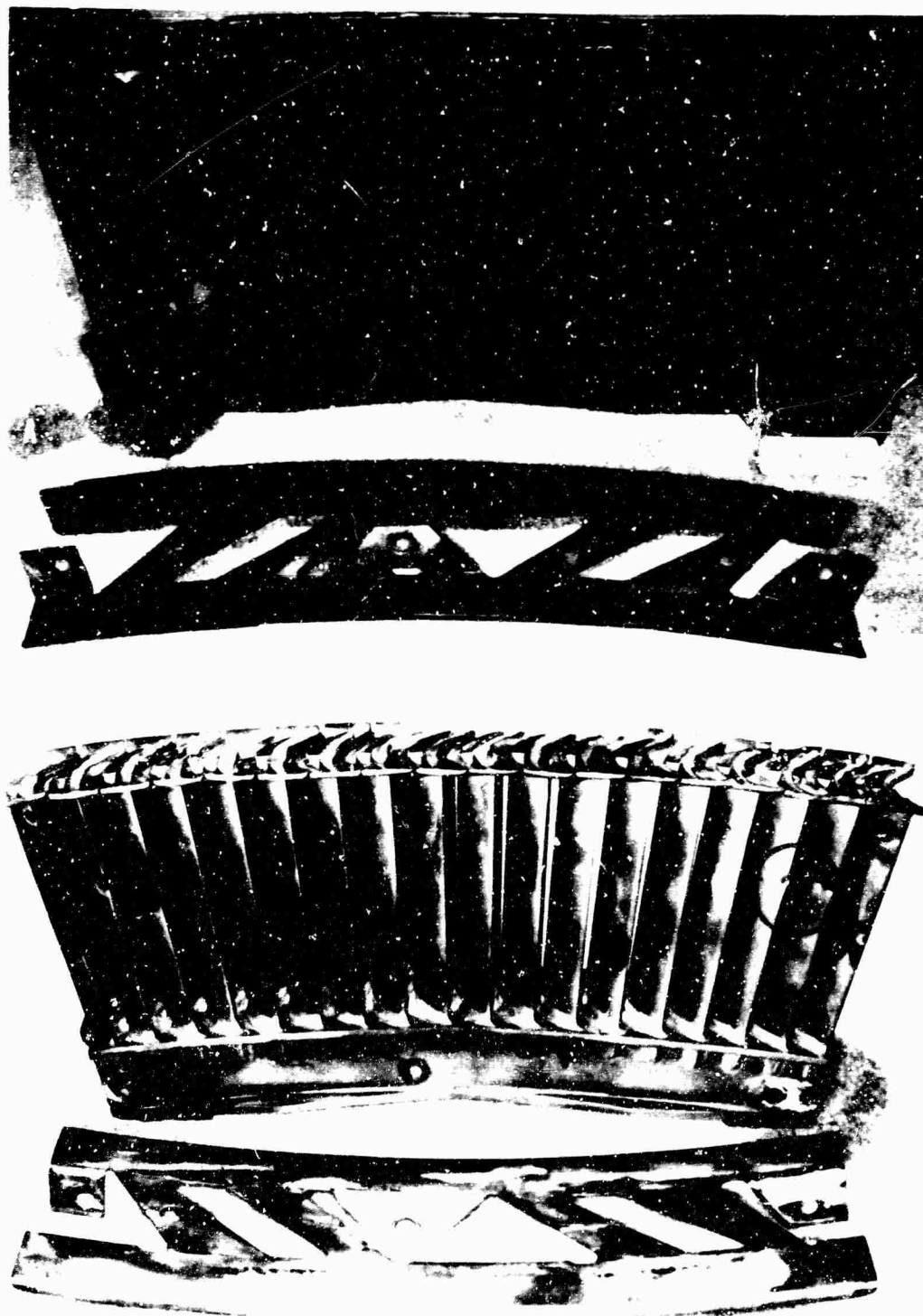


Figure II-33. Rotor

A. Carrier S/N 16 Forward Side (CASS 0747)

B. Carrier S/N 16 Aft Side (CASS 0748)

Note: Airfoil Tears, Dents

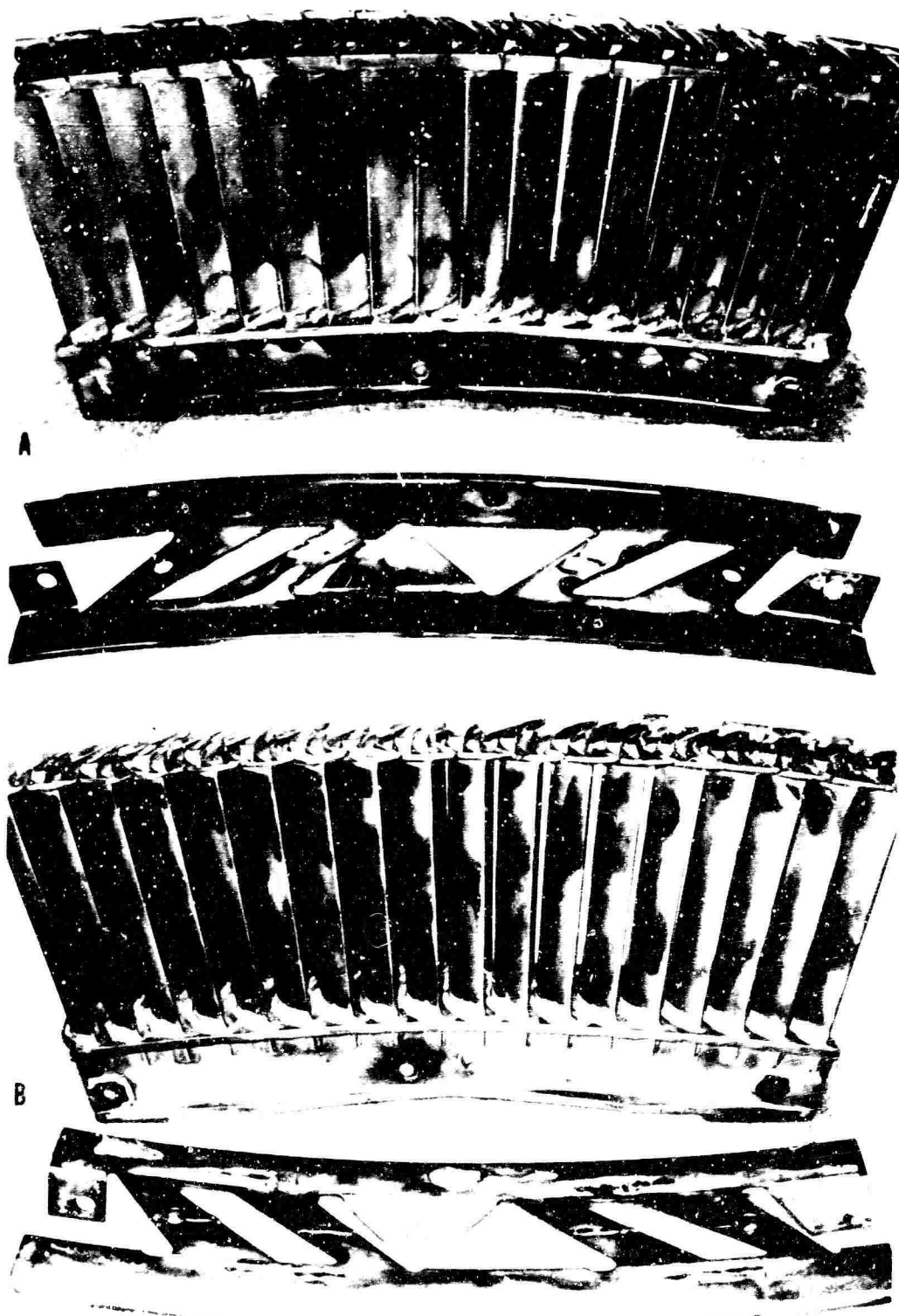


Figure II-34. Rotor

A. Carrier S/N 17 Forward Side (CASS 0729)

B. Carrier S/N 17 Aft Side (CASS 0728)

Note: Shroud Damage

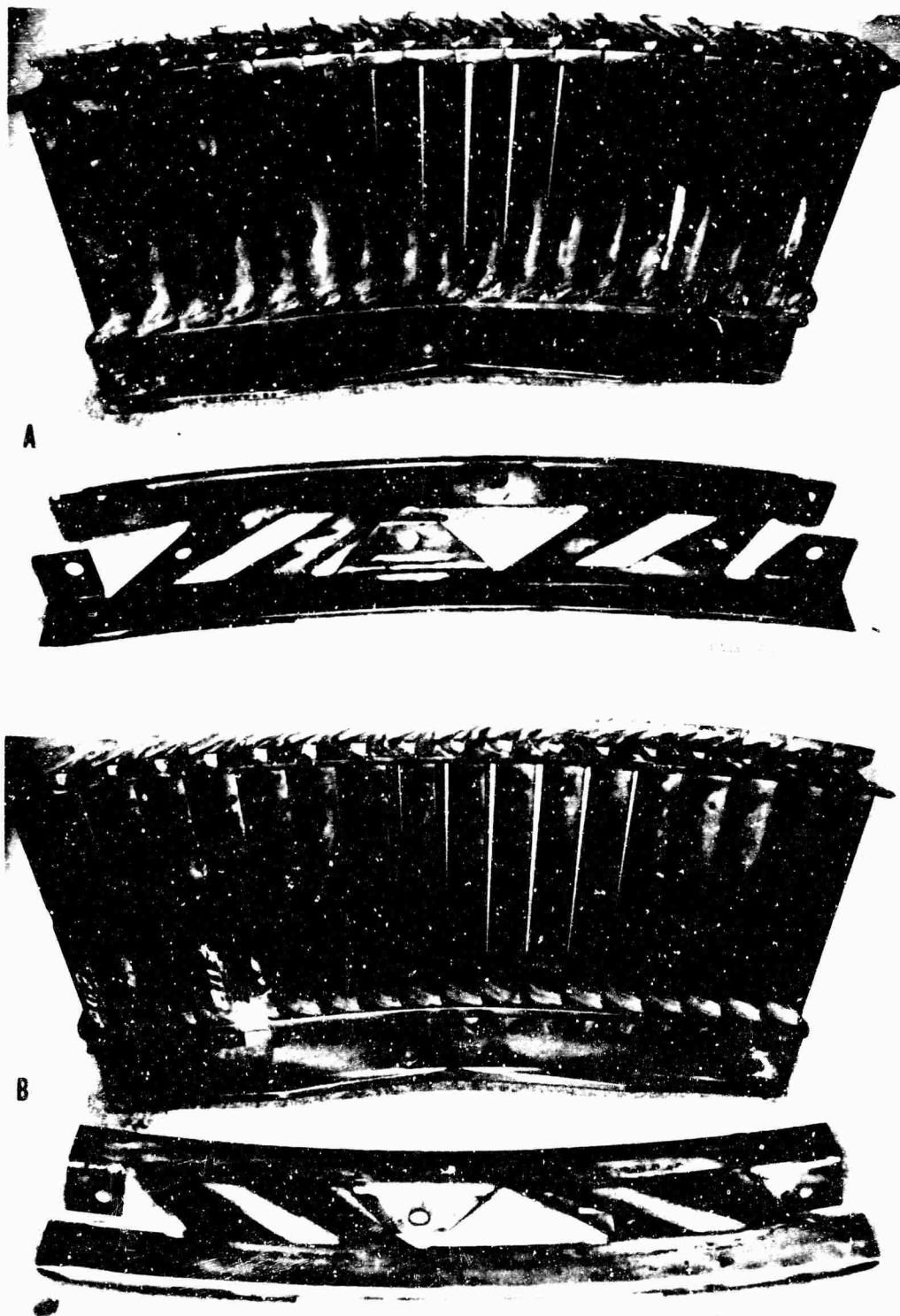


Figure II-35. Rotor

A. Carrier S/N 20 Forward Side (CASS 0733)

B. Carrier S/N 20 Aft Side (CASS 0734)

Note: Airfoil Tear, Puncture, Fretting

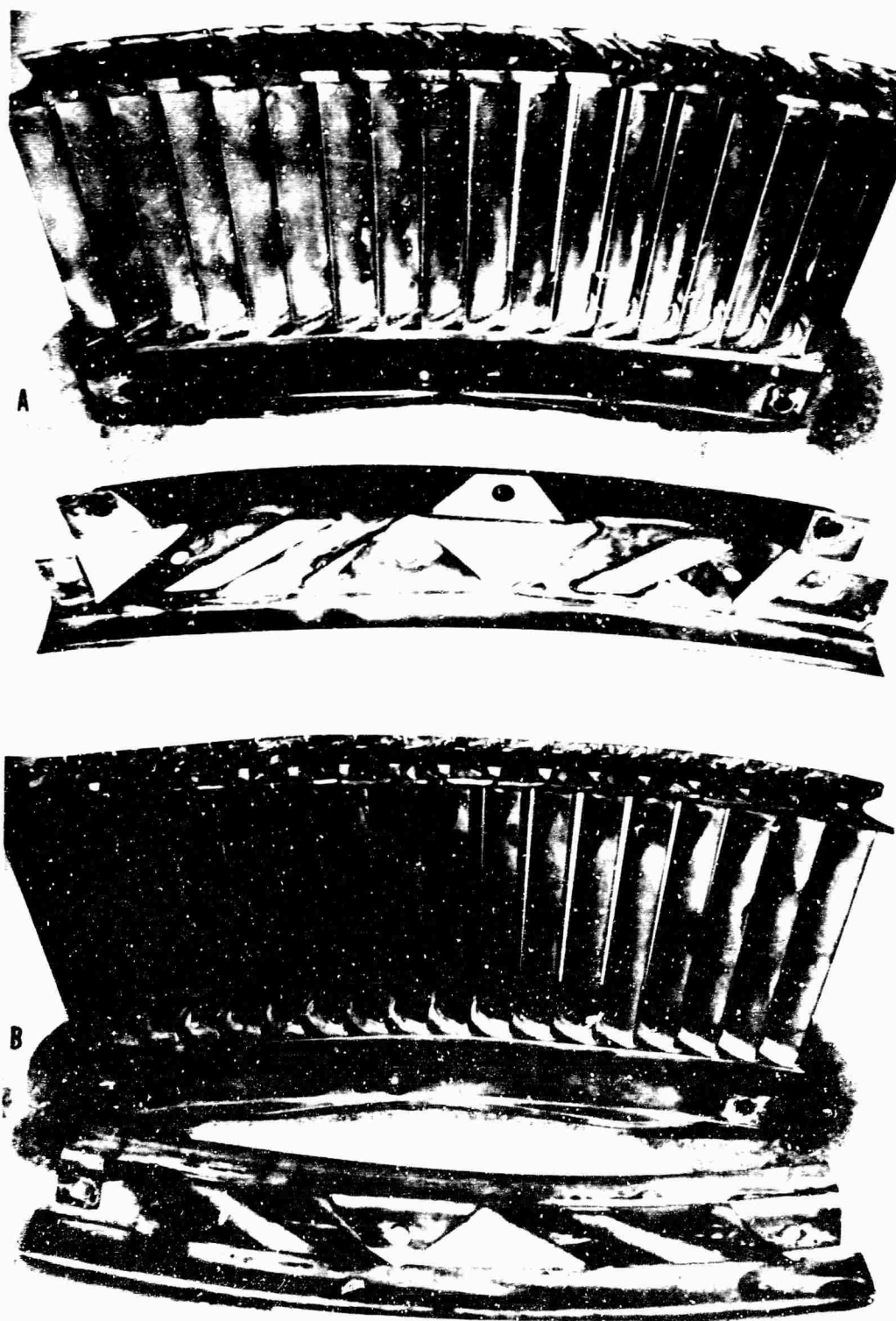


Figure II-36. Rotor
 A. Carrier S/N 21 Forward Side (CASS 0741)
 B. Carrier S/N 21 Aft Side (CASS 0745)
 Note: Airfoil Puncture

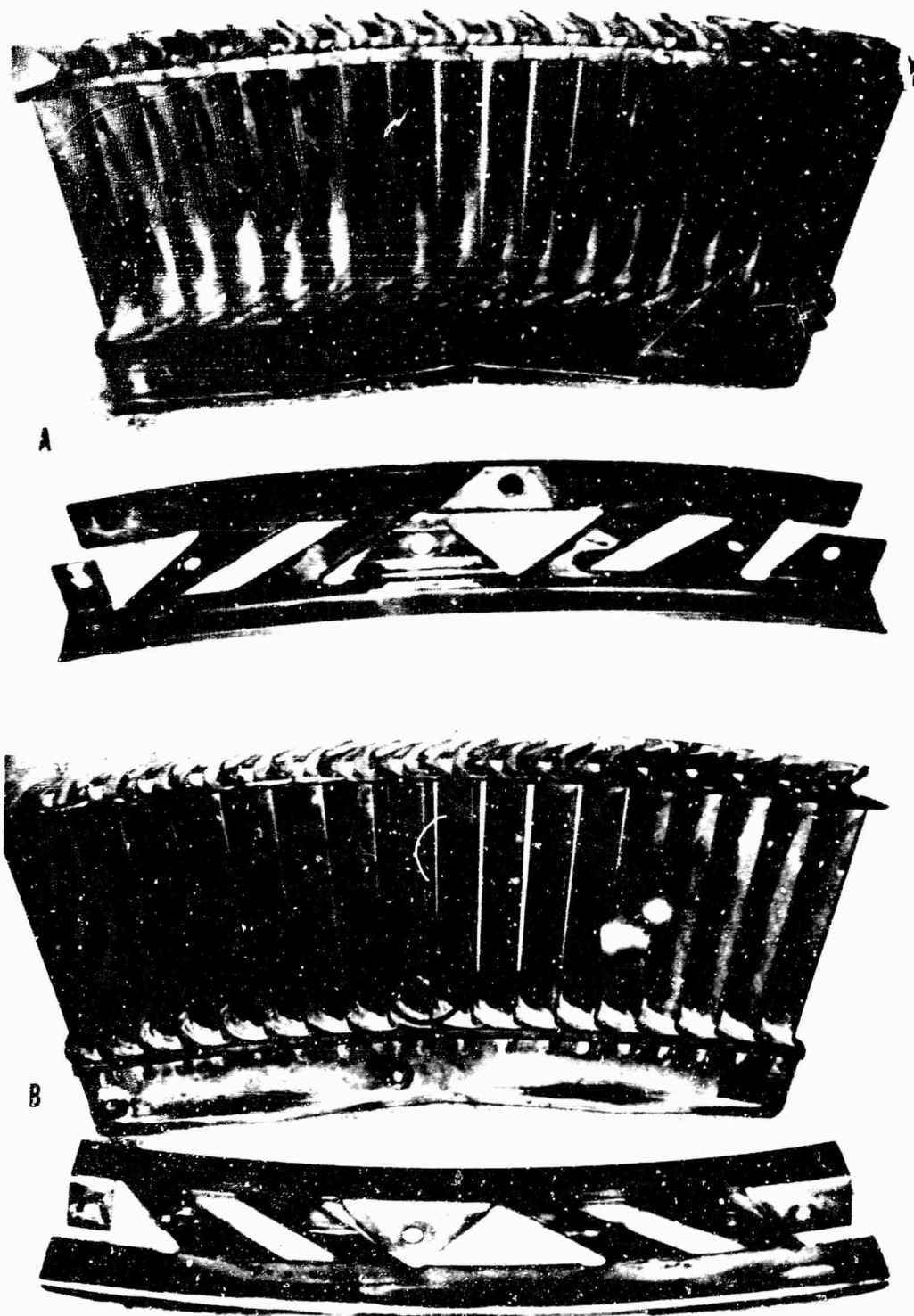


Figure II-37. Rotor

A. Carrier S/N 22 Forward Side (CASS 0735)

B. Carrier S/N 22 Aft Side (CASS 0736)

Note: Airfoil Puncture

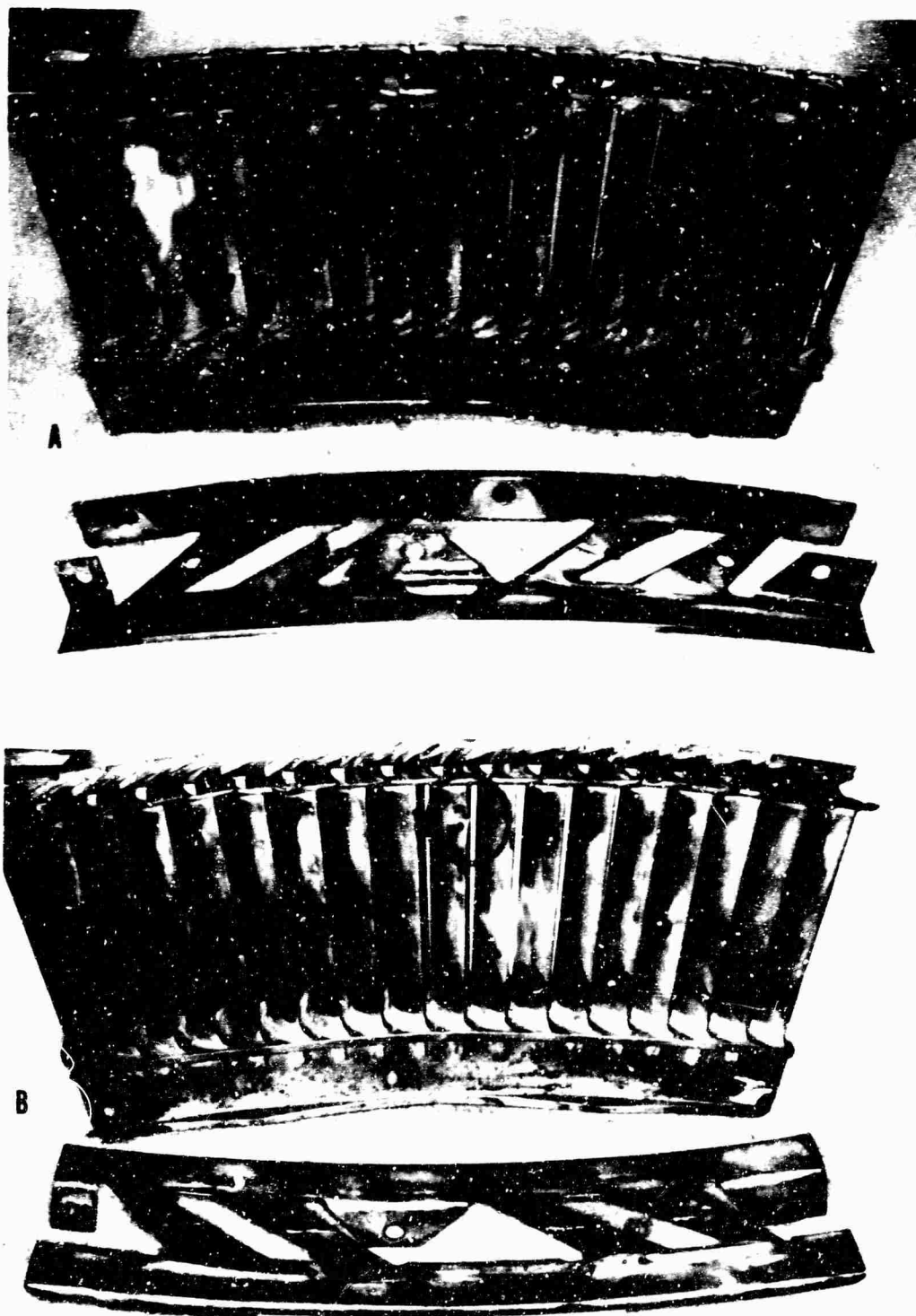


Figure II-38. Rotor

A. Carrier S/N 23 Forward Side (CASS 0755)

B. Carrier S/N 23 Aft Side (CASS 0756)

Note: Airfoil Tears

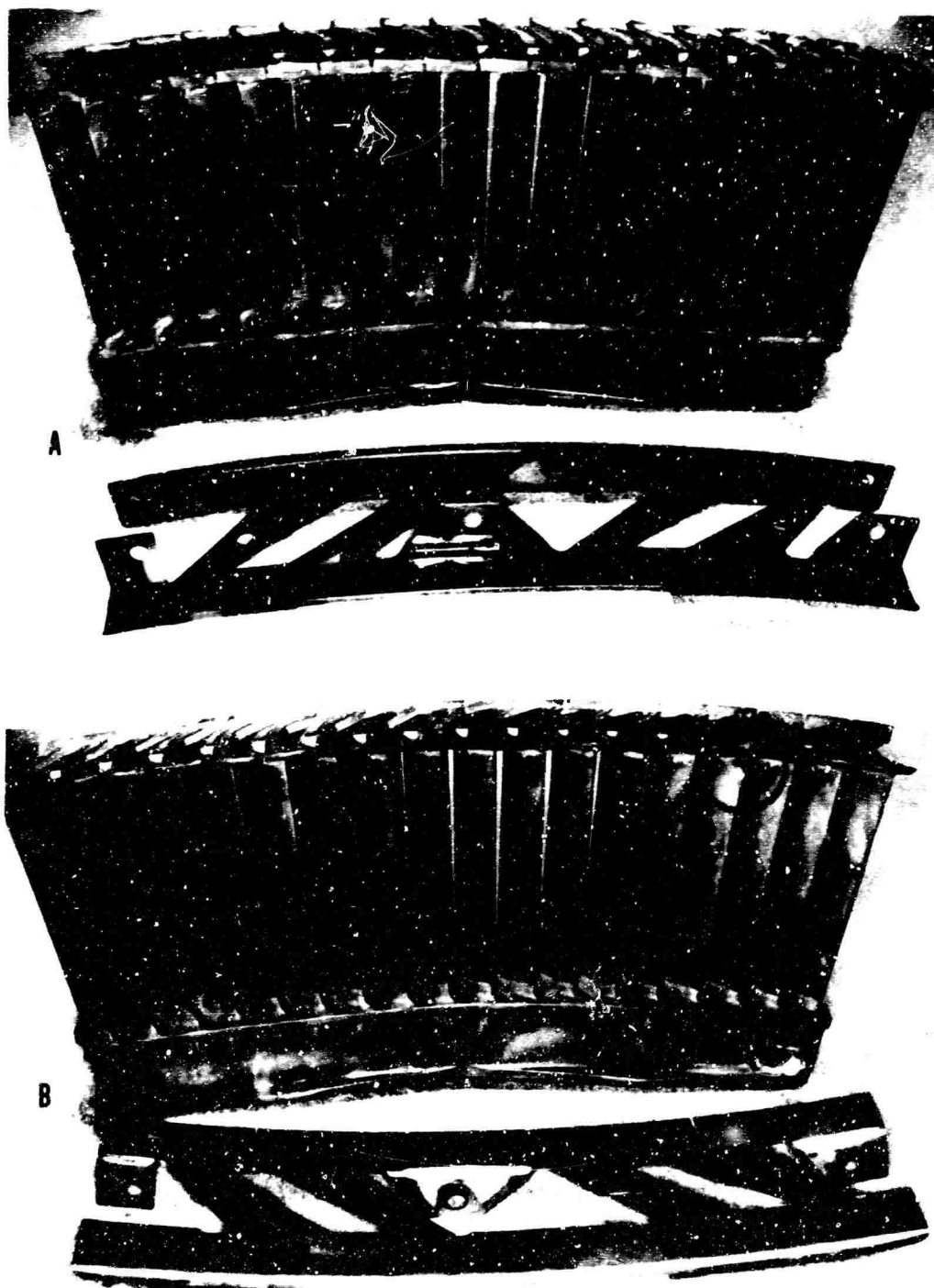


Figure II-39. Rotor

A. Carrier S/N 25 Forward Side (CASS 0737)

B. Carrier S/N 25 Aft Side (CASS 0738)

Note: Airfoil Tear

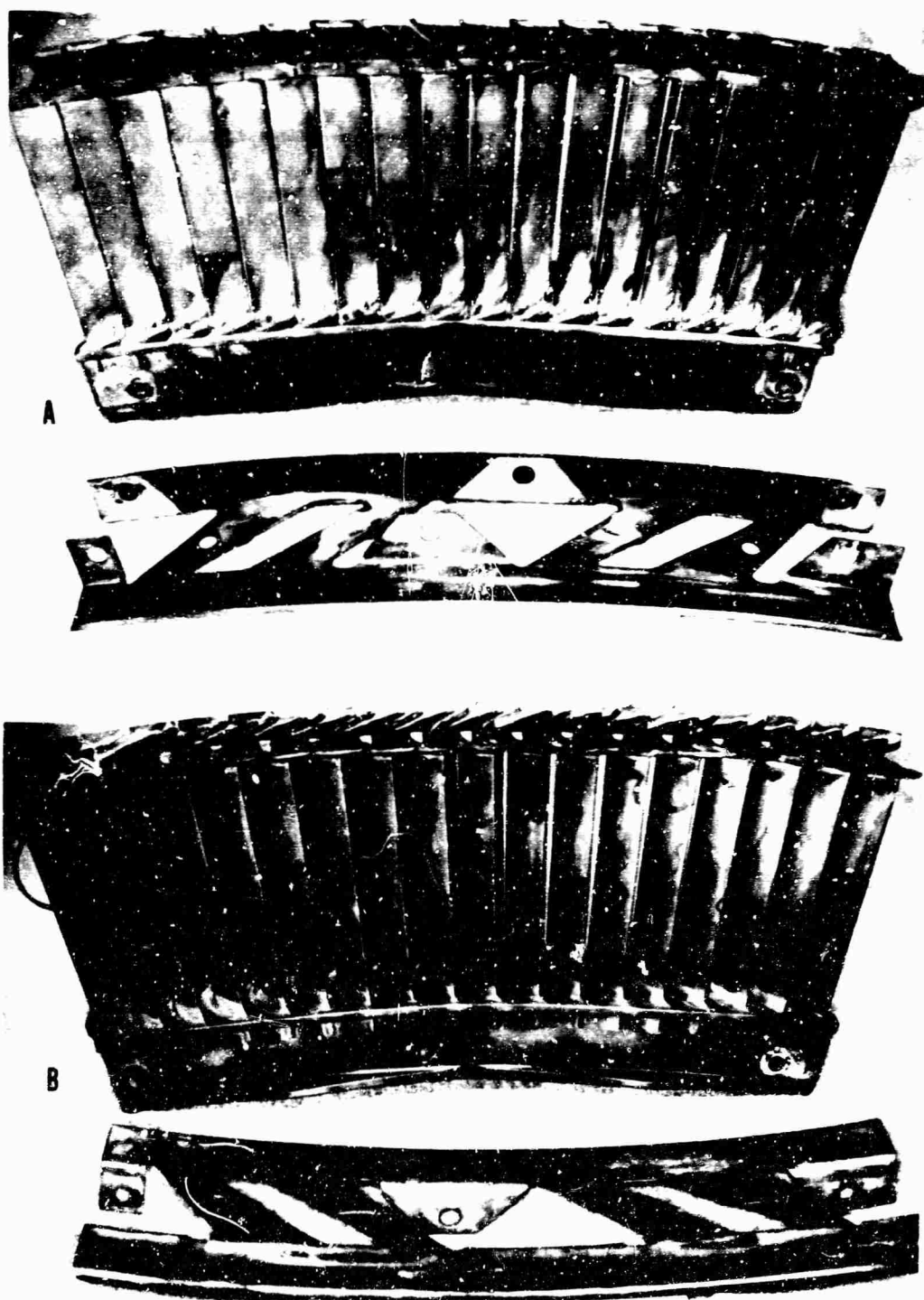


Figure II-40. Rotor
 A. Carrier S/N 27 Forward Side (CASS 0739)
 B. Carrier S/N 27 Aft Side (CASS 0740)
 Note: Airfoil Tear

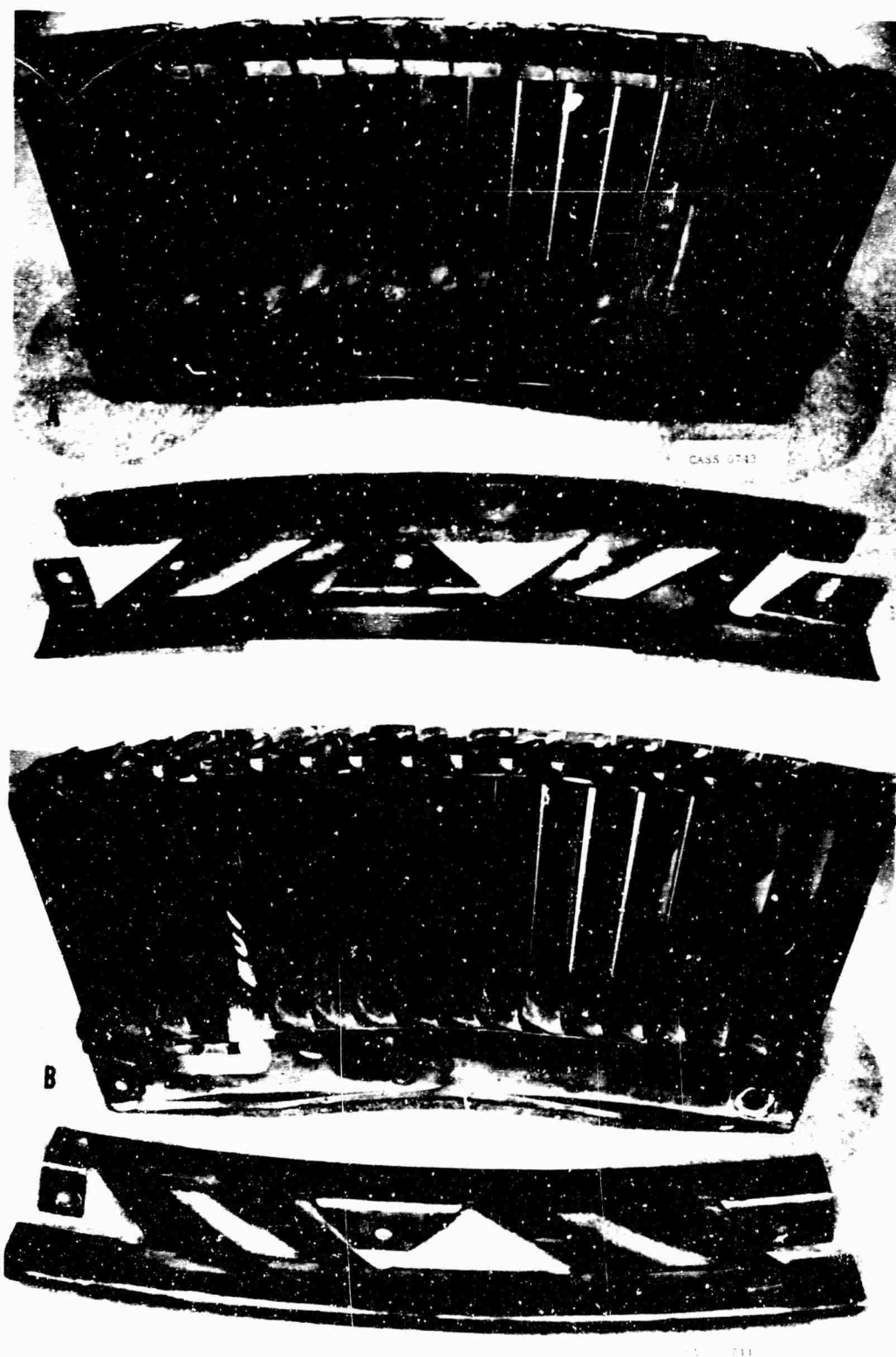


Figure II-41. Rotor
 A. Carrier S/N 30 Forward Side (CASS 0743)
 B. Carrier S/N 30 Aft Side (CASS 0744)
 Note: Shroud Tears



Figure II-42 Rotor
 A. Carrier S/N 31 Forward Side (CASS 0732)
 B. Carrier S/N 31 Aft Side (CASS 0754)
 Note: Shroud Tear

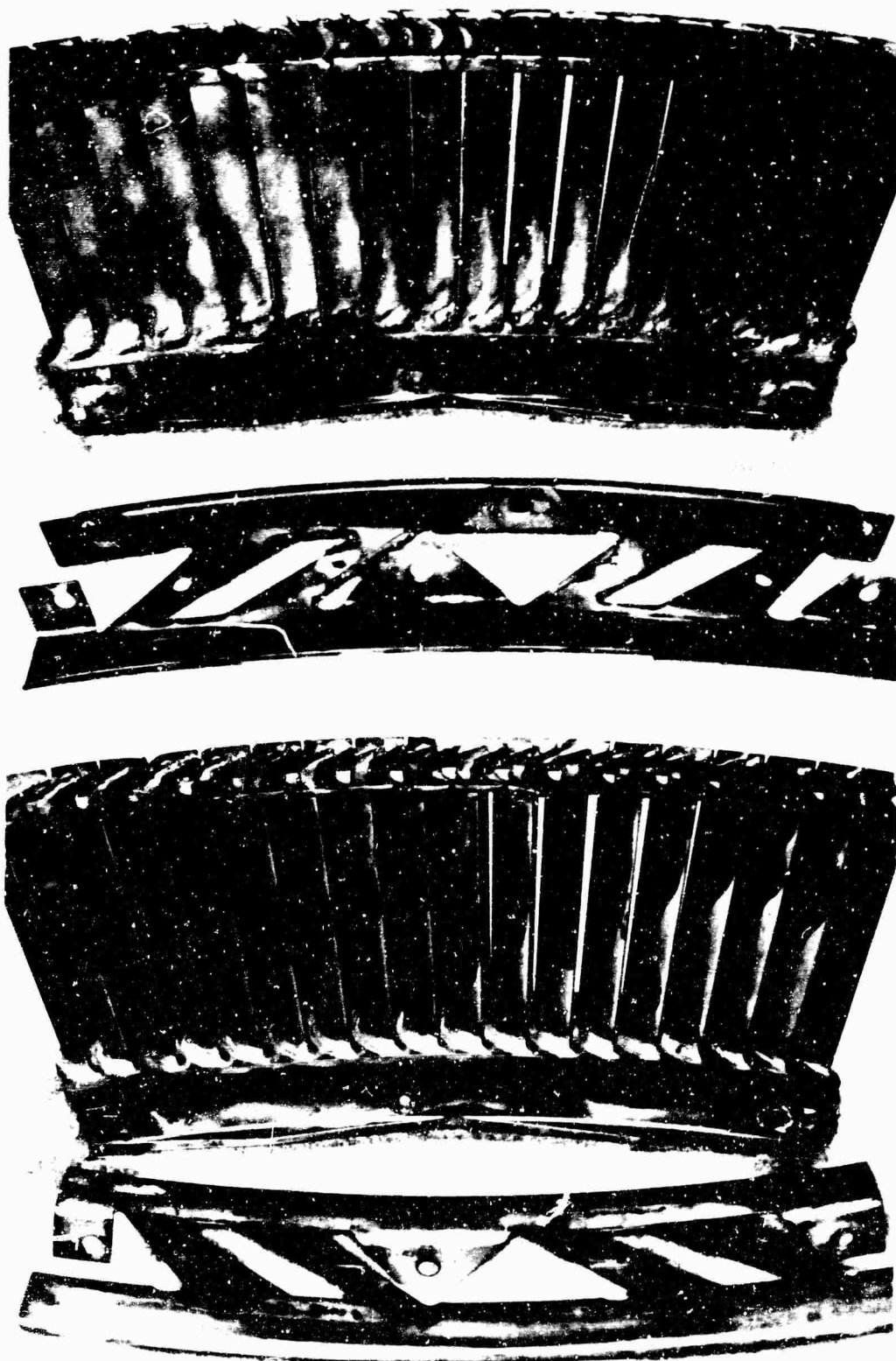


Figure II-43. Rotor

- A. Carrier S/N 32 Forward Side (CASS 0730)
- B. Carrier S/N 32 Aft Side (CASS 0731)

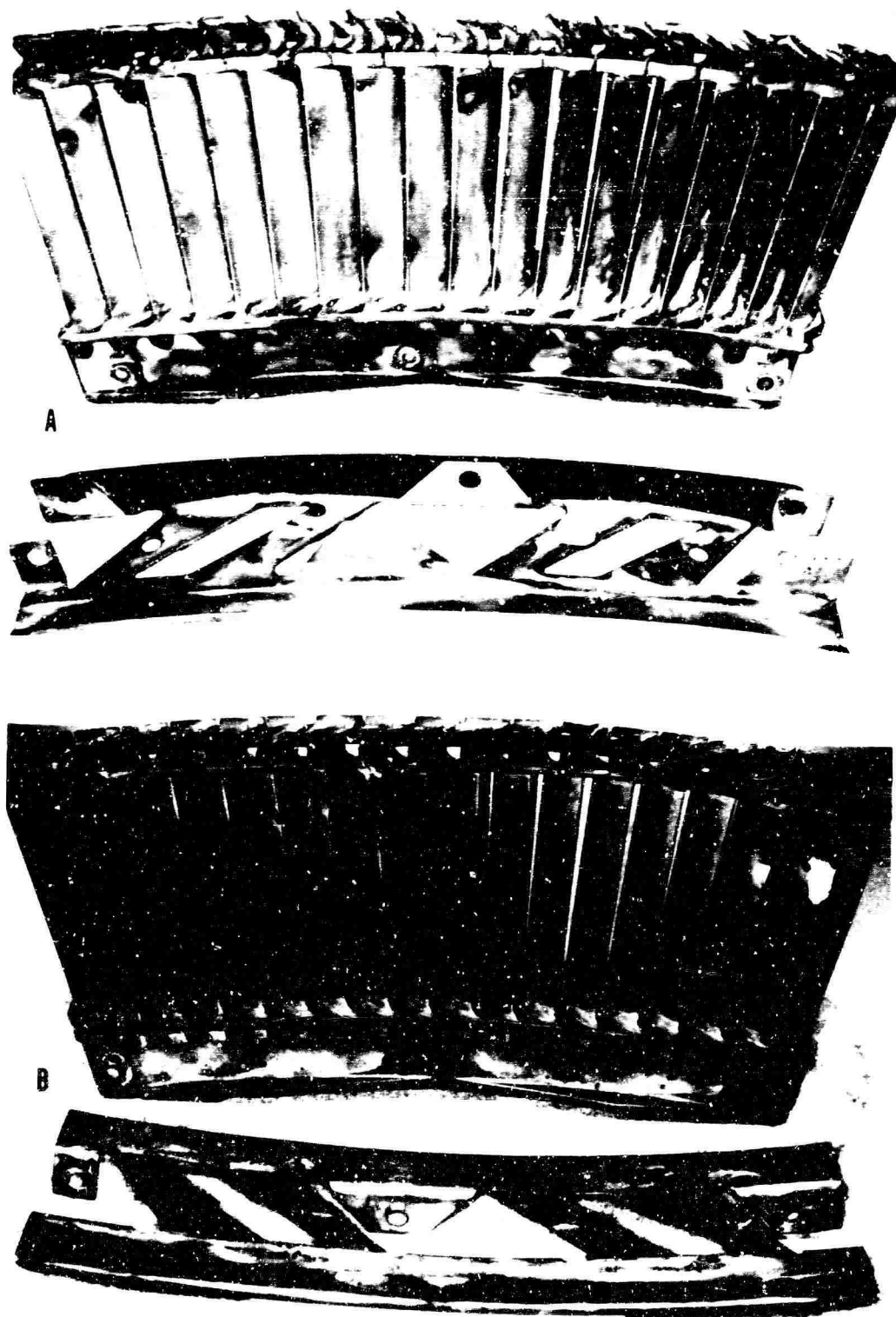


Figure II-41. Rotor
 A. Carrier S/N 41 Forward Side (CASS 0757)
 B. Carrier S/N 41 Aft Side (CASS 0742)
 Note: Shroud Gouge, Airfoil Tears

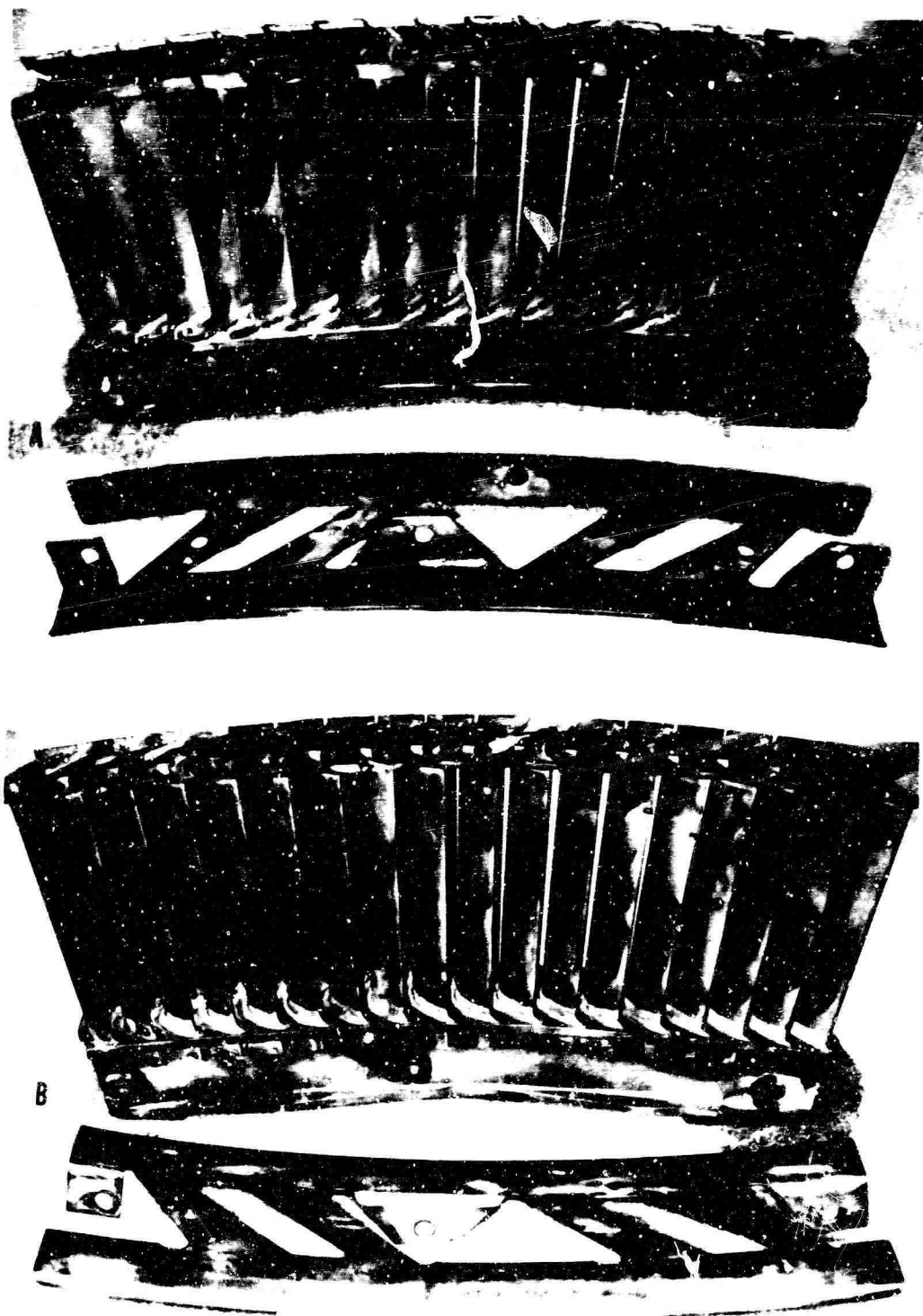


Figure II-45. Rotor
 A. Carrier S/N 54 Forward Side (CASS 0751)
 B. Carrier S/N 54 Aft Side (CASS 0752)
 Note: Shroud and Airfoil Tears

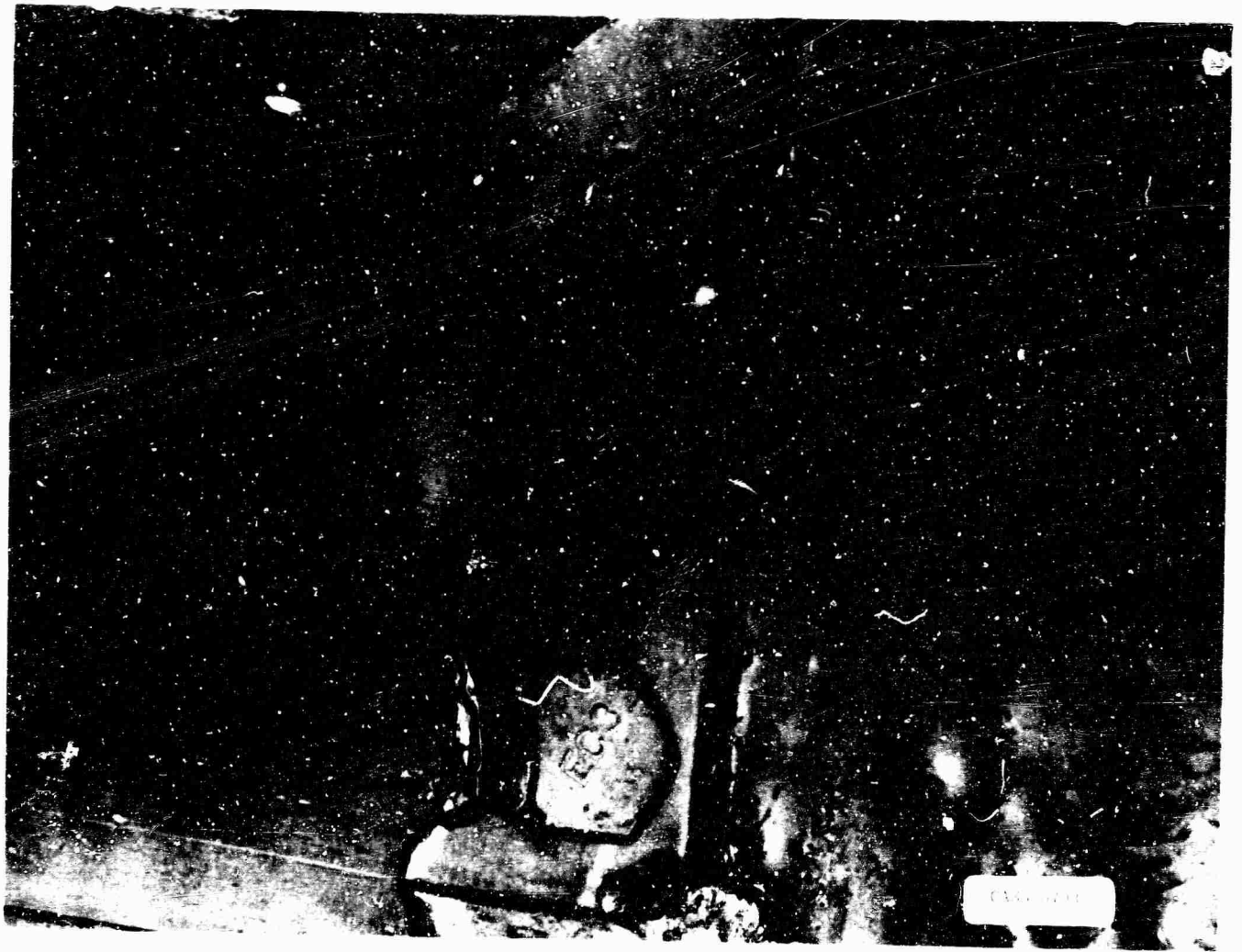


Figure II-46. Rear Frame
Missing Carrier Tab Lodged In
Insulation Blanket (CASS 0703)

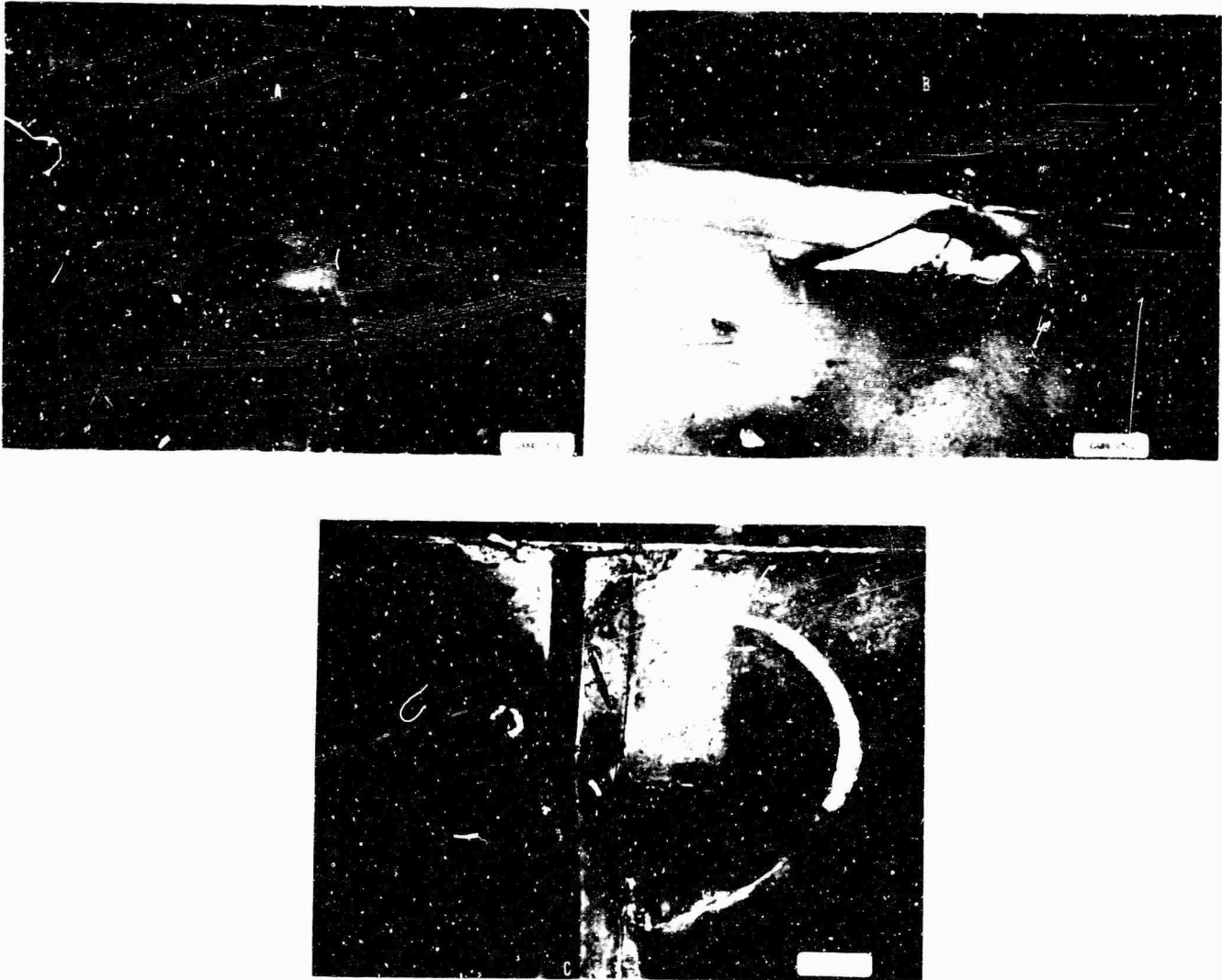


Figure II-47. Rear Frame
 A. Cut In Insulation Blanket (CASS 0704)
 B. Cut In Insulation Blanket (CASS 0701)
 C. Puncture In Rear Frame Skin
 (Opposite B.) (CASS 0699)
 Cause: Migration Of Carrier Tab

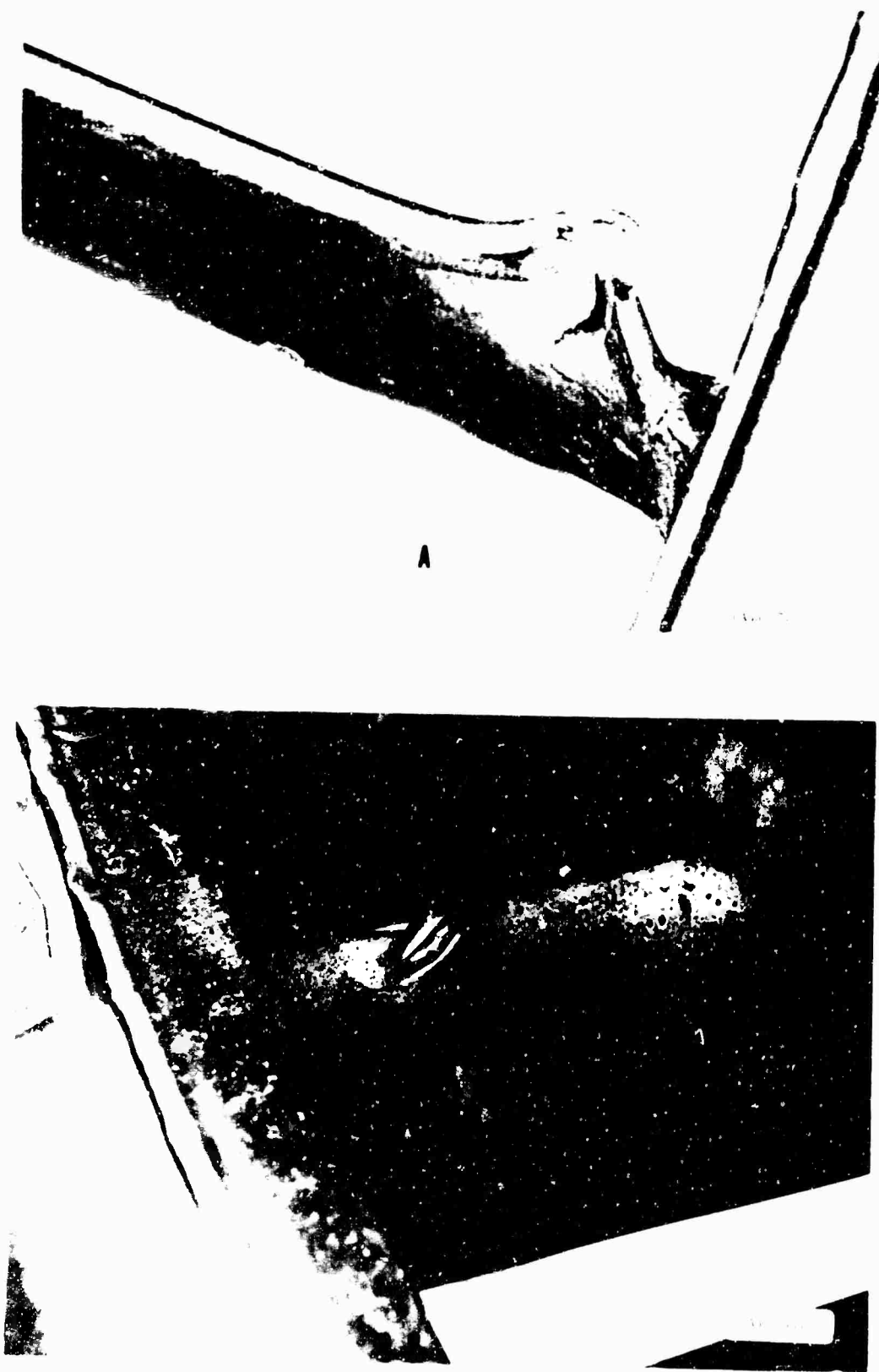


Figure II-48. Rear Frame

- A. Turbine Stator Tear (Carrier Tab) (CASS 0713)
- B. Fan Stator Cut (Washer, Not Part Of Test Vehicle, Found Lodged In Vane During FWT) (CASS 0711)



Figure II-49. Rear Frame
Bent Air Seal (From Migrating Carrier Tab) (CASS 0784)

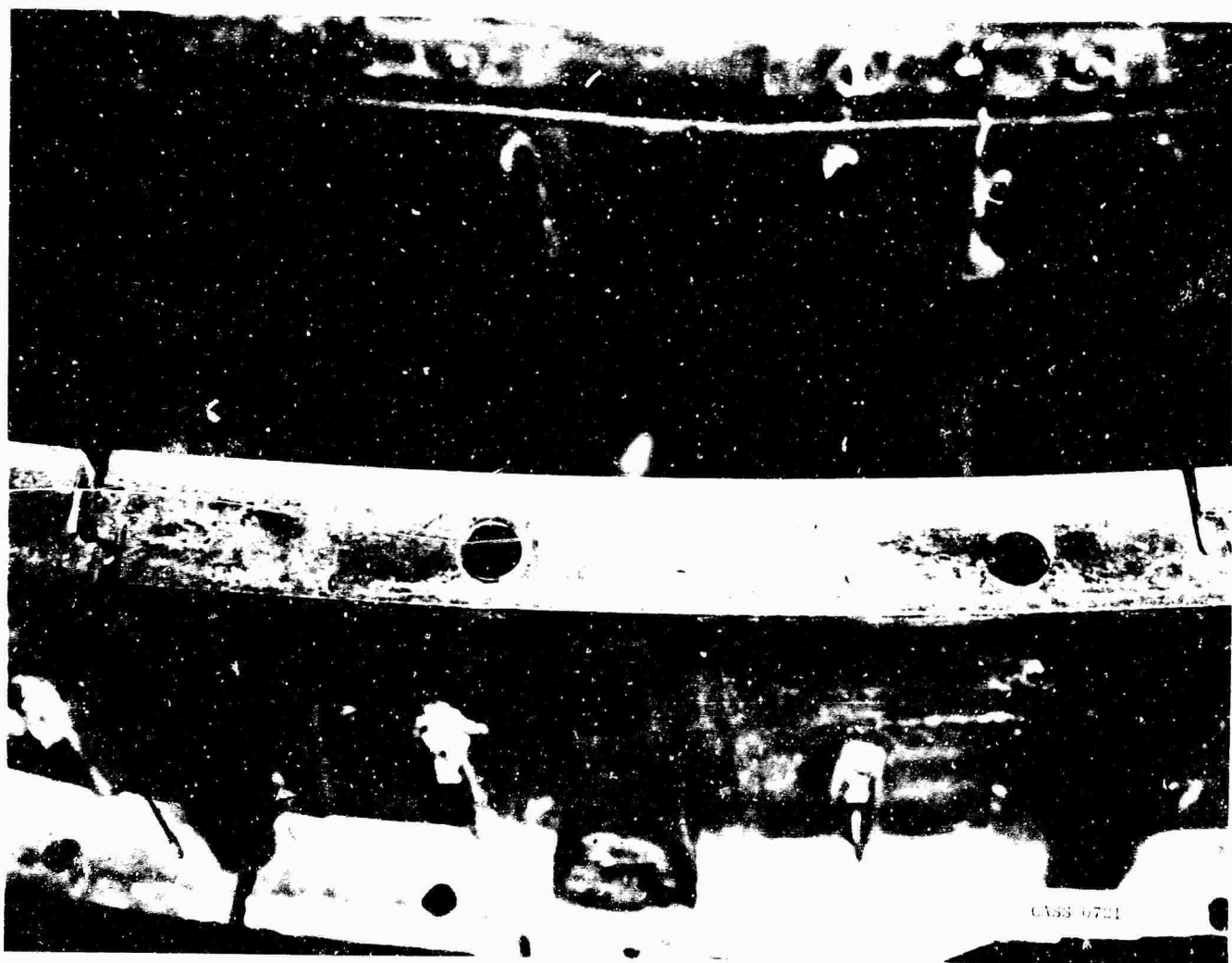
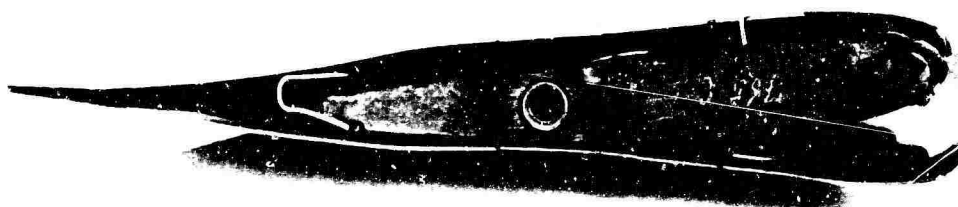


Figure II-50. Rear Frame
Thermal Break In Flange Relief Cut (CASS 0721)



A

C2111505



B

C2111504

Figure II-51. Exit Louvers
 A. Skin Failure At Load Bearing Eng Cap (C 2111505)
 B. End View Of A (C 2111504)



B

C2111501

Figure II-52. Exit Louvers

- A. Failed Spot Welds (Undersize Nuggets (C 2111502)
- B. End View Of A. (C2111501)

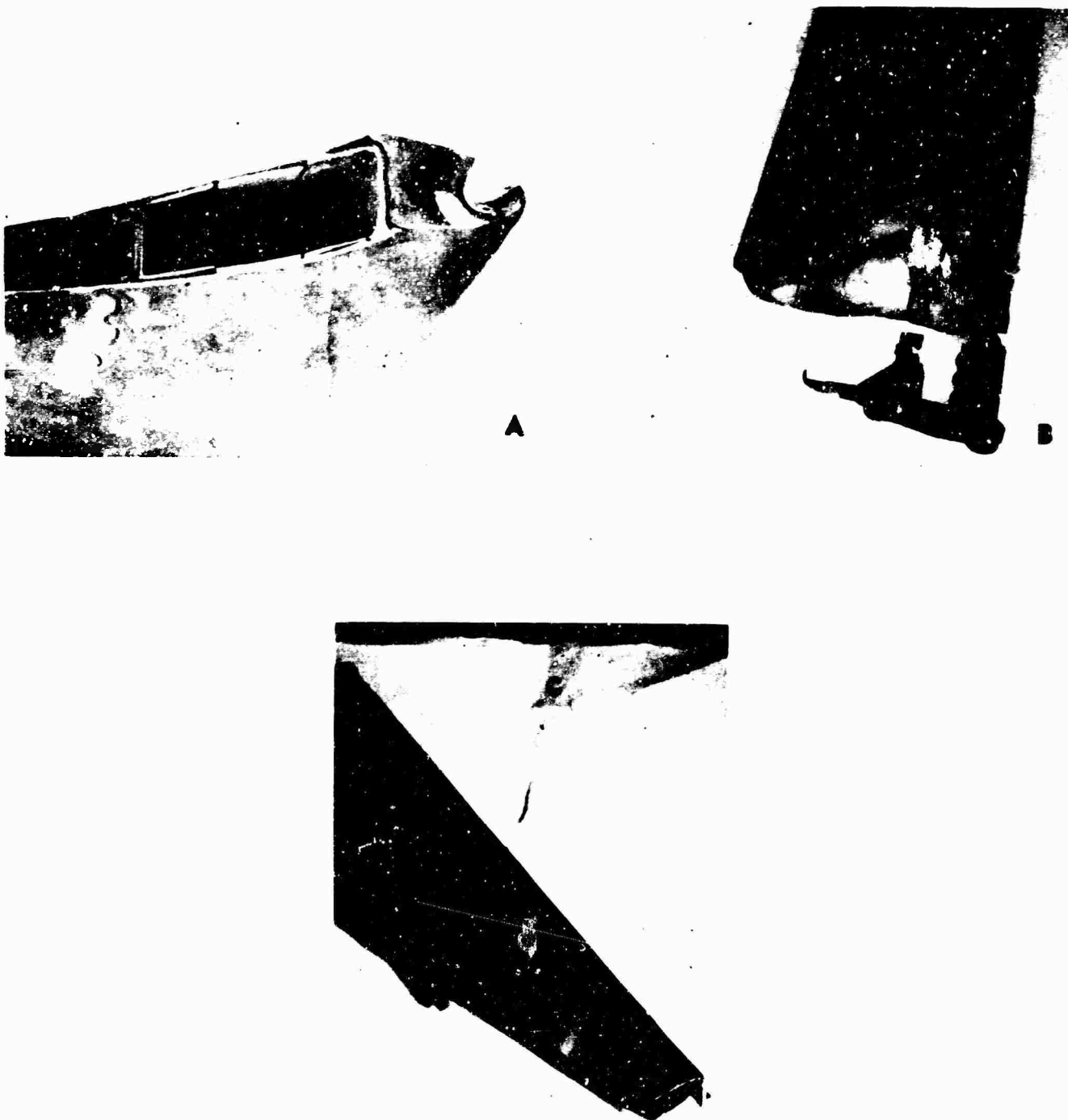


Figure II-53. Exit Louvers
 A. End Cap Weld Failure (Undercu Weld) - #36
 B. End Cap Failure; Louver Dislodged During Operation (Failed Plug Welds) - #23
 C. Thermal Buckling Adjacent To Turbine Stream - #38 (3 Polaroids)
 Note: Typical Failures



Figure II-54 Exit Louvers
Typical Spot Weld Failure and Resultant
End Cap Failure - #22



Figure II-55 Exit Louvers
Typical Spot Weld Repair

**DISCREPANCIES
PITCH FAN**

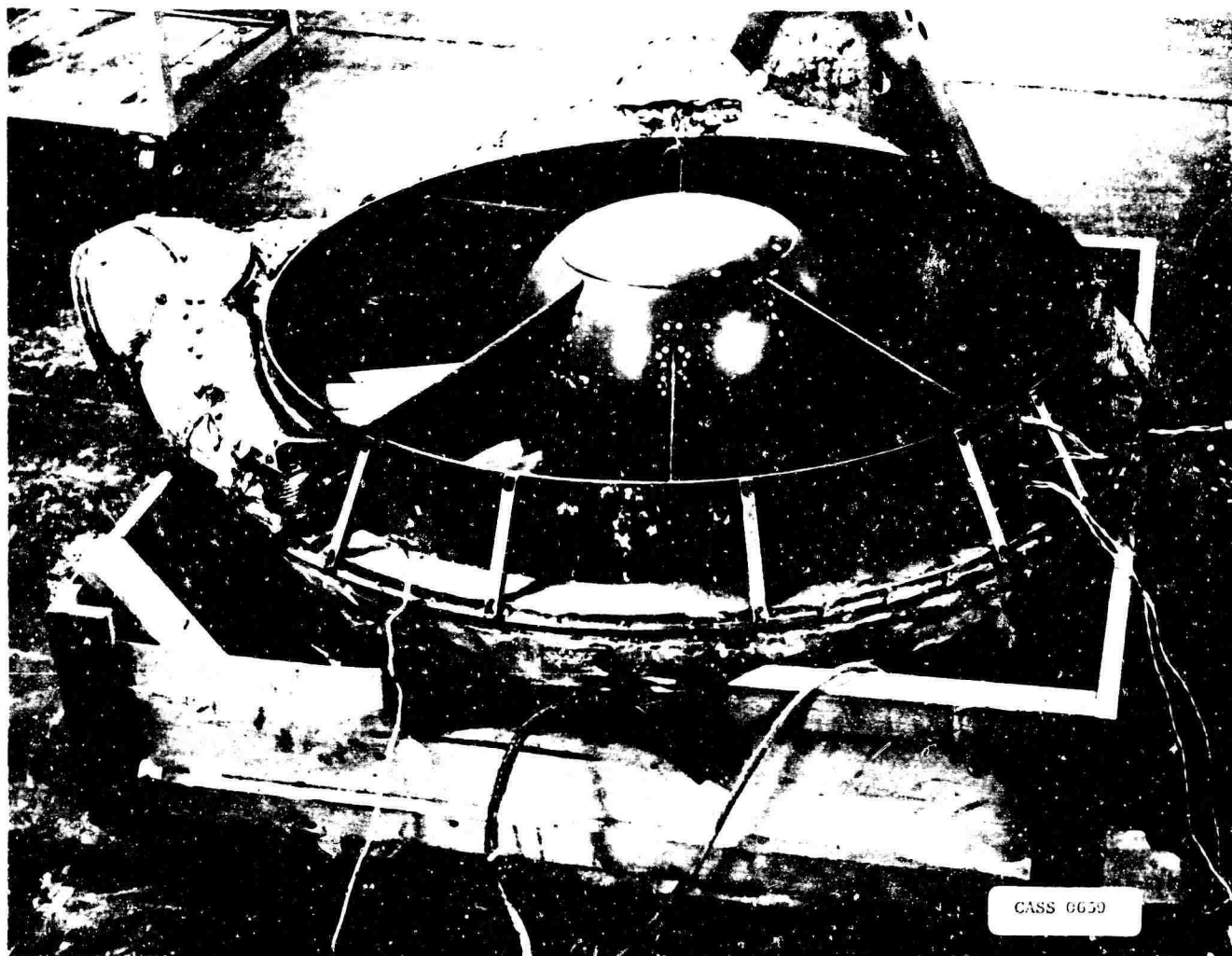


Figure II-56. Pitch Fan Assembly
Pitch Fan After Completing FWT

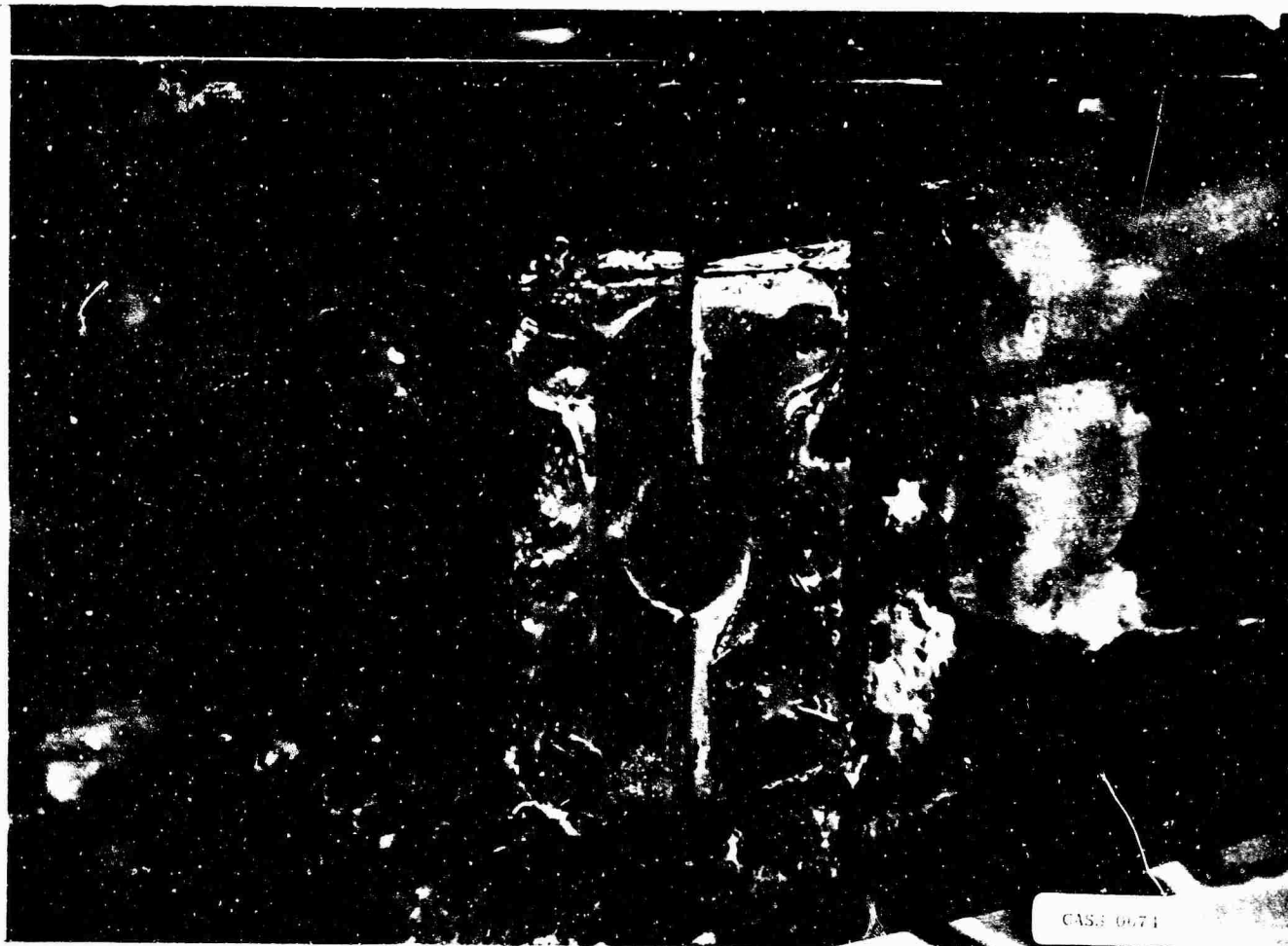


Figure II-57. Front Frame
Insulation Added To Frame Active Arc And Insulation
Pad Installed Between Frame And Scroll Center Mounts
To Correct Over-Temperature Condition (CASS 0674)
Note: Pad Installation Completed Without Fan
Disassembly

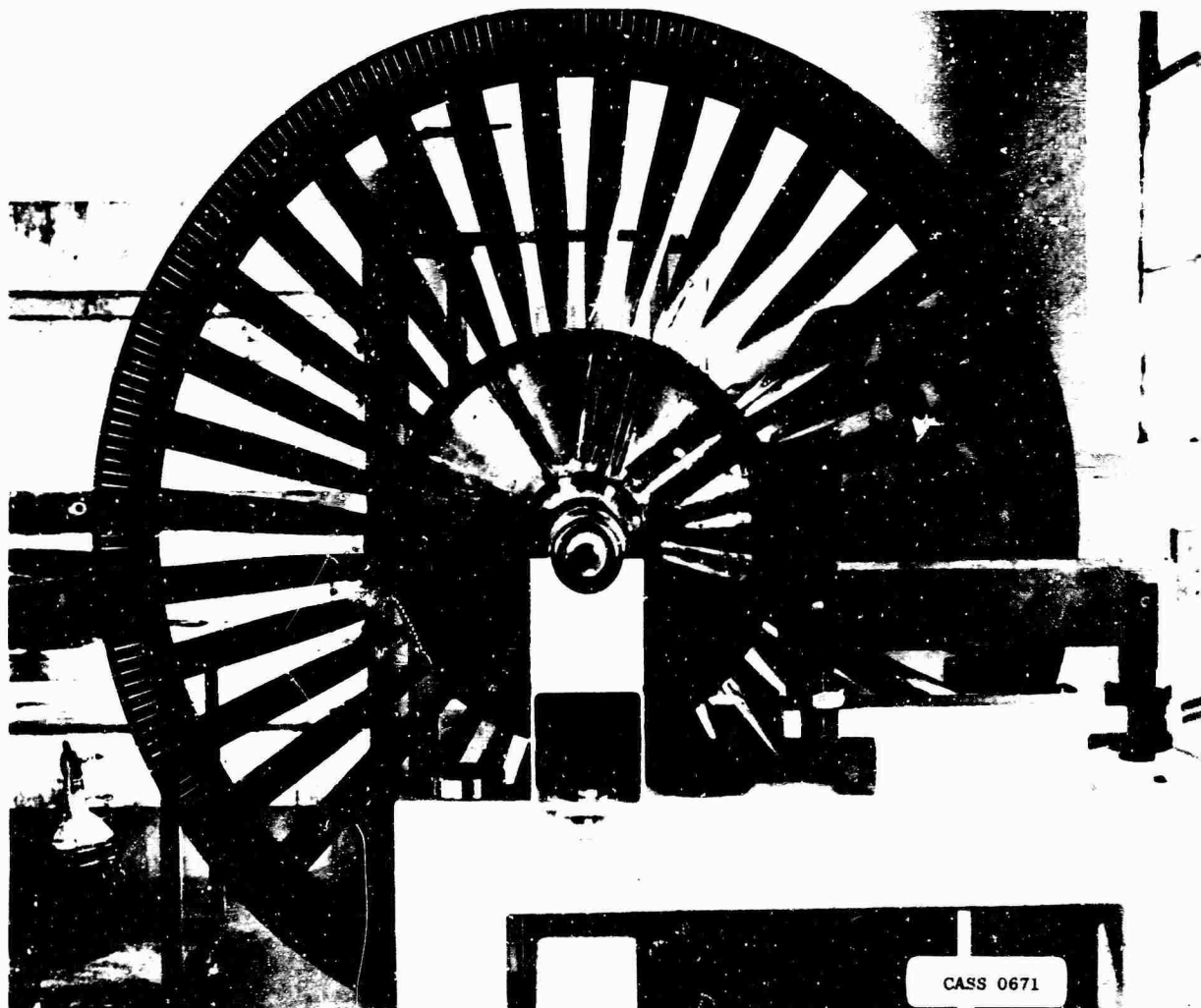


Figure II-58. Rotor
Rotor Sub-Assembly Prior To Disassembly After
Completing FWT



Figure II-59 Rotor
Roller Bearing Inner Race Burnished And
Discolored By Aft Grease Seal
Note: Light Groove In Bearing Path

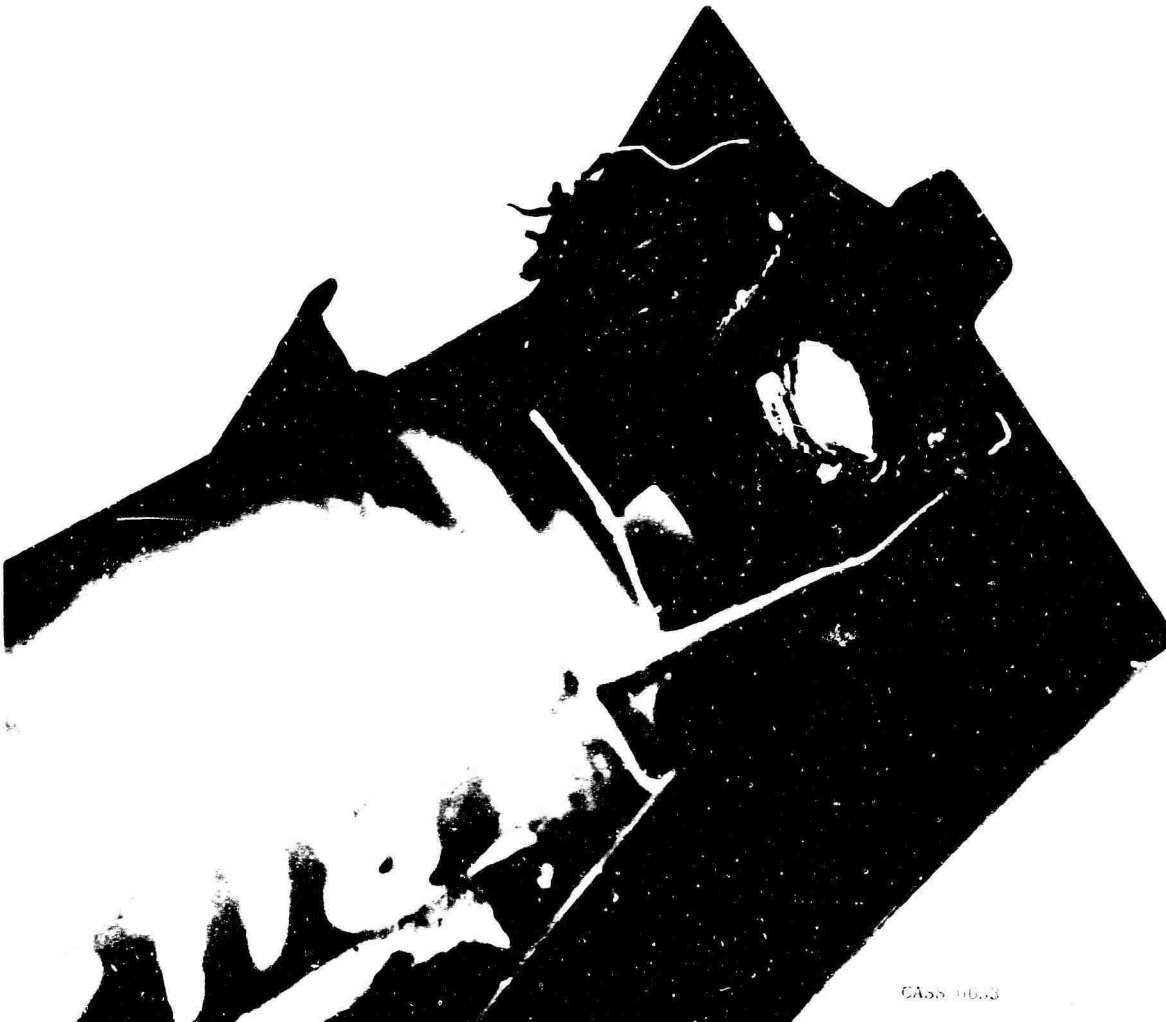


Figure II-60. Rotor
Missing Carrier Anchor Nut (CASS 0683)
(Broken Loose At Disassembly)

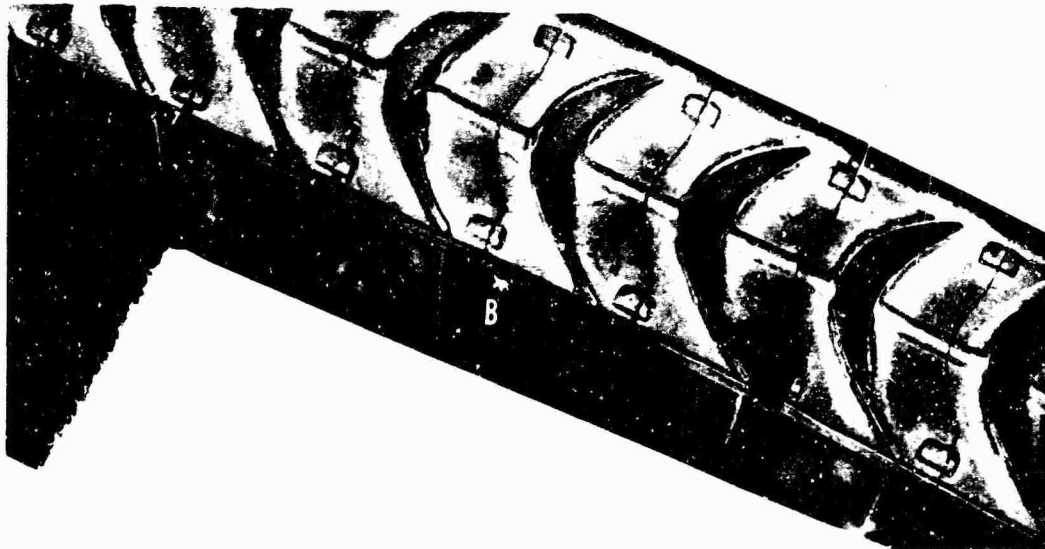
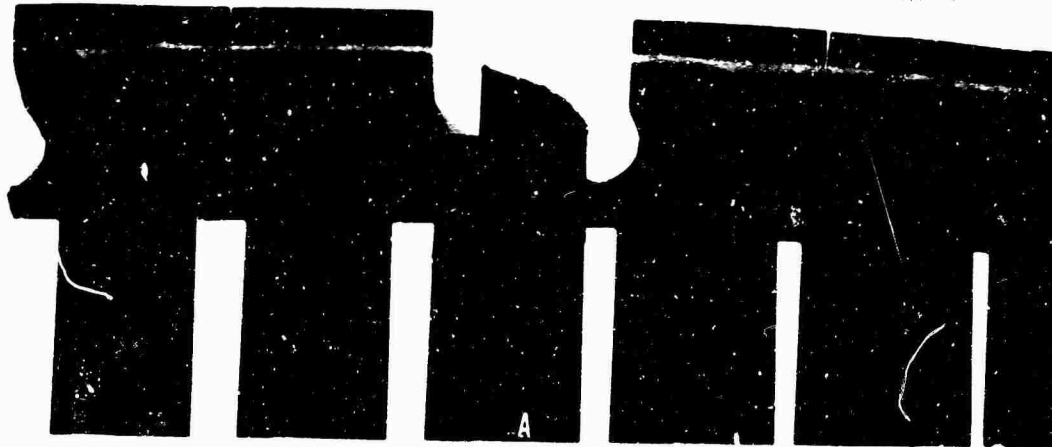


Figure II-61. Rotor
A & B. Missing Shroud Sections (CASS 0679, 0678)
Probable Cause: Braze Faults

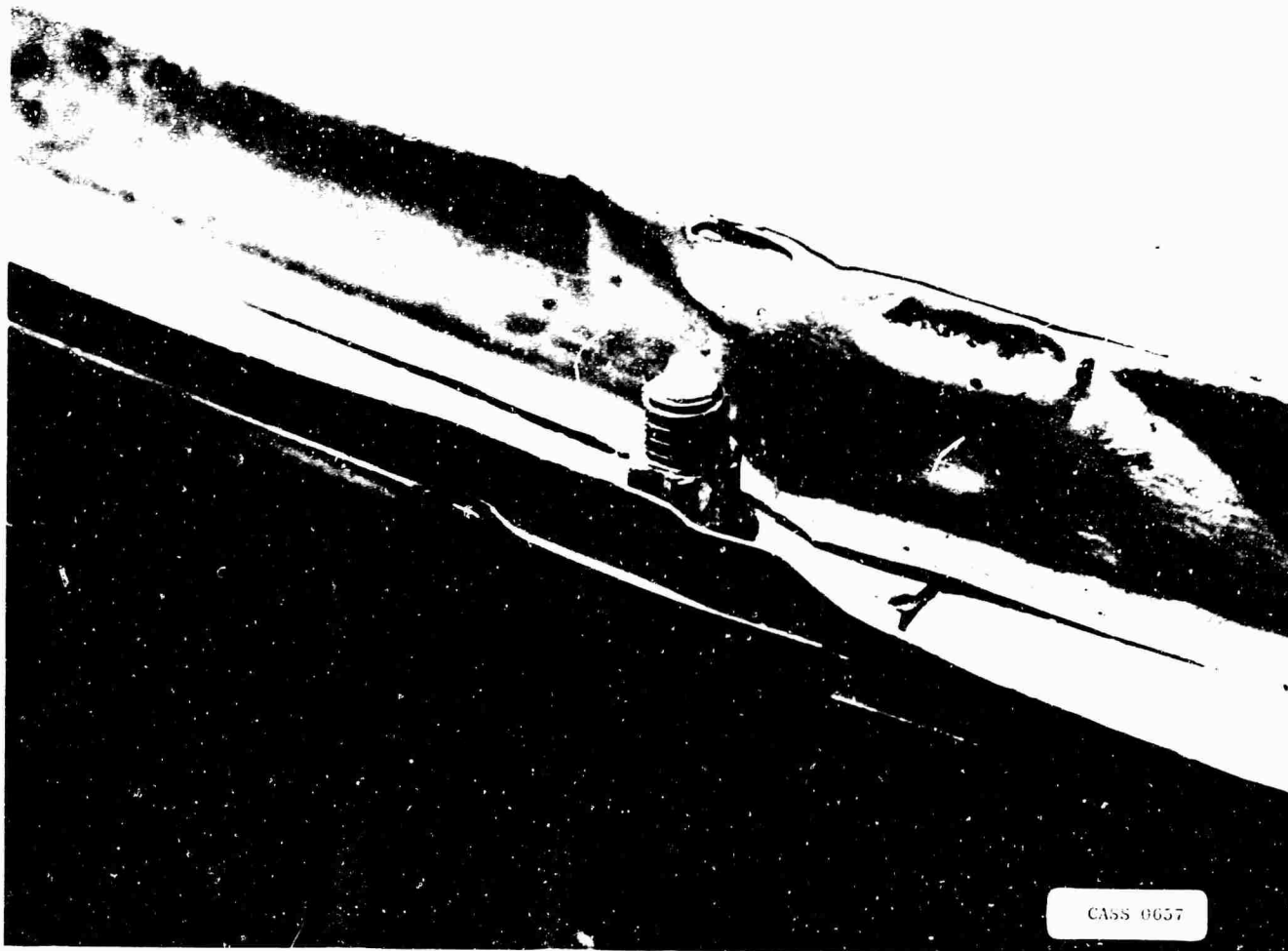


Figure II-62. Rear Frame
Insulation Cover Dents (CASS 0657)
Probable Cause: Damaged During Removal
From Test Facility



Figure II-63. Rear Frame
 A & B. Thermal Distortions And Breaks In Flange
 Relief Cut (Typical Of 5) (CASS 0660, 0661)

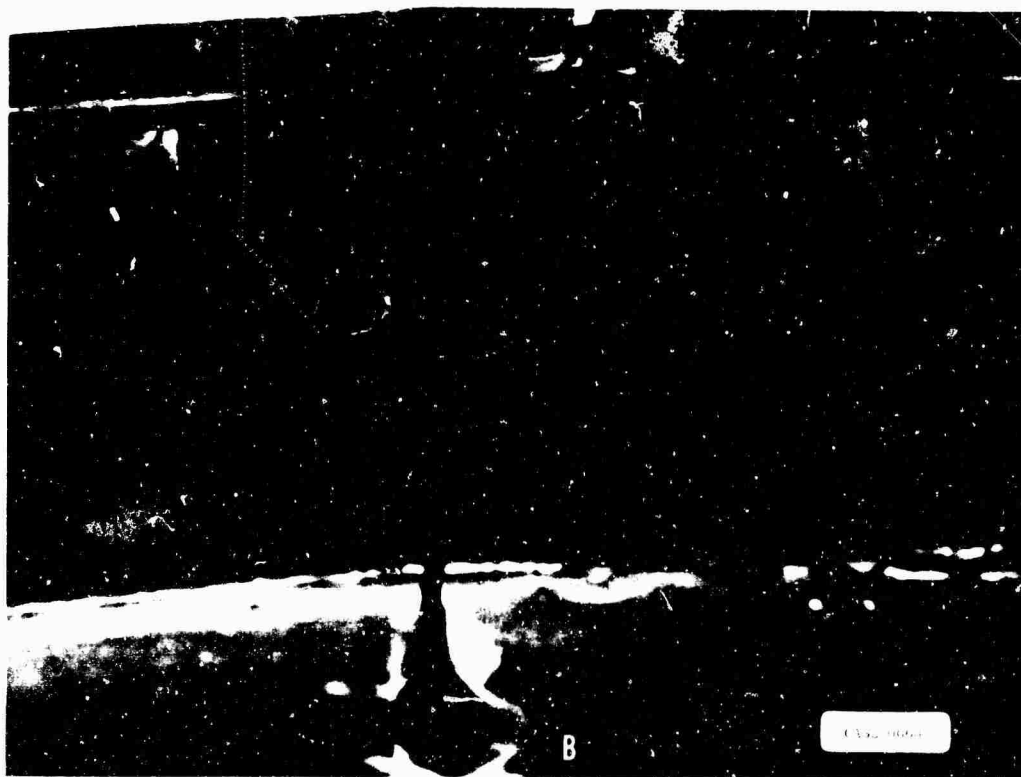


Figure II-64. Rear Frame
A & B. Inner Skin Fatigue Failures At Expansion
Joint (CASS 0669, 0668)



Figure II-65. Rear Frame
Thermal Cracks In Box Section Between Fan And Turbine
Stators (CASS 0662)
Note: Dent In Box Section Occurred In Fabrication



Figure II-66. Rear frame
 A & B. Crack In Braze Between Hat Section And Frame
 Inner Wall (Inactive Arc) (CASS 0665)

INSPECTION CERTIFICATES
DIVERTER VALVE

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012153-360P13P2 Link

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. P50T10A

INSPECTOR E. W. Wagoner 12-16-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012153-37461 LINE - REAR DOOR

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. PSOTLOA

INSPECTOR E. Wagner 12-16-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012155-38063

NUMBER OF PIECES 1 LINK - FORWARD DOOR

FLUORESCENT PENETRANT SPEC. P50710

INSPECTOR E. Wagner 12-16-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ DIVERTER VALVE S/N 003

PART NUMBER 4012153-38064 LINKAGE ASSY
(FWD. DGR)

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. SECTION A

INSPECTOR E. Wagner

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

VZ-11
Flight Research Program
LFP Fan Design Engineering

DRB Report # _____
Page 1 of 1

☐ Lift Fan ☐ Pitch Fan ☒ Diverter Valve ☐ Other _____
 Part Name Valve 13004 Drawing Number 13004-117-1918 Serial Number 003 & 009
 Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
 Vendor FRV 7-1007 Inspector's Name E. J. H. 1127 Date 12-17-64

Quantity Inspected -

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification
Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV
Remarks:

-73-

DRUG ACTION

Flight Research Program
LFP Fan Design Engineering

LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

DRB Report # _____
Page _____ of _____

Part Name FORWARD DOOR Drawing Number 4253 555 Serial Number 125 109
Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
Vendor FRY TEST Inspector's Name E. JONES Date 12-12-64

Quantity Inspected -

Remarks:

Rework Order # _____ Shipping Notice # _____

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

DRB Report # _____
Page 1 of 1

Original Order No.

☐ Lift Fan ☐ Pitch Fan ☒ Diverter Valve ☐ Other

Part Name AFT DOOR Drawing Number 4012153-3396 Serial Number 007

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FRV TEST Inspector's Name E. WART Date 12-17-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required:	Yes	No
-----------	-----	----

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrs. *Logan R. B...* Date *12-17-62*

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

INSPECTION CERTIFICATES

LIFT FAN

GENERAL ELECTRIC COMPANY
DRB ACTION

VZ-11
Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

DRB Report # _____
Page ____ of ____

Original Order No. _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name FRONT FRAME Drawing Number 100001500 Serial Number 003

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor _____ Inspector's Name _____ Date _____

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

Zone	B/P Dimension	Checks	Disposition
		<u>EVER MISSING 700000K</u>	
		<u>POSITION ON BULLET NOSE</u>	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV
Required: Yes No

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. Kagan Jan Date 12/14/62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ FRONT FRAME

PART NUMBER 4012001-30041

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. SPOT 2/640

INSPECTOR Logan C. Bann

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

DRB ACTION

Flight Research Program
LPP Fan Design Engineering

DRB Report # _____
Page 1 of 1

Quantity Inspected -

-79-

VZ-11
Flight Research Program
LFP Fan Design Engineering

LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

S/W 503 T/O # 2

Original Order No.

DRB Report #

Page _____ of _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name *Set Screws*

Drawing Number 2000-452 Serial Number

Next Higher Ass'y. Name

Drawing No.

Serial No.

Vendor *7/2/01*

Inspector's Name 2-11-1967

Date 12-2-72

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - /

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required:	Yes	No
1. Is the subject of the document clearly stated in the title?		
2. Is the document organized in a logical manner?		
3. Is the document written in a clear and concise manner?		
4. Is the document written in a professional manner?		
5. Is the document written in a consistent manner?		
6. Is the document written in a complete manner?		
7. Is the document written in a correct manner?		
8. Is the document written in a proper manner?		
9. Is the document written in a suitable manner?		
10. Is the document written in a useful manner?		
11. Is the document written in a relevant manner?		
12. Is the document written in a timely manner?		
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14. Is the document written in a secure manner?		
15. Is the document written in a compliant manner?		
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33. Is the document written in a valid manner?		
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75. Is the document written in a quick manner?		
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93. Is the document written in a quick manner?		
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97. Is the document written in a speedy manner?		
98. Is the document written in a prompt manner?		
99. Is the document written in a quick manner?		
100. Is the document written in a fast manner?		

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. 10-16-64 Date 10-16-64

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ DISC & SHAFT A554

PART NUMBER 4012001-148

NUMBER OF PIECES 1 A554

FLUORESCENT PENETRANT SPEC. SPOT 27420

INSPECTOR Logan C. Brown

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

S/N 003 Standard # 2 S/V

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012001-15561 - *Rotor Series S/V*

NUMBER OF PIECES 18

FLUORESCENT PENETRANT SPEC. PSCTIC

INSPECTOR *Wagner* 12-14-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

**5713 has indication*

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ RETAINER, BLADE

PART NUMBER 4012001-163 G1

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. SPOT 24640

INSPECTOR Logan C. Brown

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

DRE ACTION

Flight Passes Program
LFP Fan Design Engineering

VZ-11 Project

Page of

Vendor 7251 Inspector's Name J. J. J. Date 12-12-61

Quantity Inspected - 32

-84-

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012001-159 Platform

NUMBER OF PIECES 36

FLUORESCENT PENETRANT SPEC. P50T10

INSPECTOR C. Wagner

12-14-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

S/N — 47-41-13-31-17-7-38-19-43-21-53-18-10-46-
42-40-26-15-51-32-32-38-20-39-5-23-44-
25-34-49-50-48-27-29-19-35-

No Indications in Zuglo

Visual cracks at cutout on each end of
the P3 BRACE.

SOLD
TO

General Electric Co
260 W. Mitchell Ave
Cincinnati 32, Ohio

SHIPPED
TO

CUST ORDER NO	DATE RECEIVED	LABORATORY ORDER	SHIPPED VIA	SHIPMENT COMPLETE PARTIAL	DATE SHIPPED	INVOICE DATE
592-7387-74		L 8253			12/17	12/21/62
QUANTITY	PART NUMBER	DESCRIPTION			UNIT PRICE	TOTAL

36 001-147 blades

please remit to:

MAGNETIC ☐ MAGNAFLUX
☒ MAGNAGLO
PENETRANT ☐ ZYGLO
☐ SPOTCHECK

RADIOGRAPHIC ☐ X-RAY
☐ GAMMA RAY
ULTRASONIC ☐ CONTACT
☐ IMMERSSED

☐ EDDY CURRENT
☐ OTHER

APPLICABLE SPECIFICATIONS OR PROCESS STANDARDS AMS 2140

METALLURGICAL OR OTHER EXAMINATION PERFORMED ☐ SEPARATE REPORT ☐ FILM ENCLOSED ☐ PHOTOS ENCLOSED ☐
PARTS WITH NO INDICATIONS WERE ☐ CERTIFIED STEEL STAMPED ☐ CERTIFIED RUBBER STAMPED ☐ GREEN DYED
☐ PRIMARY STEEL STAMPED ☐ PRIMARY RUBBER STAMPED ☐ OTHER

PARTS WITH INDICATIONS WERE ☐ MARKED WITH CRAYON ☐ TAGGED ☐ OTHER

REMARKS:

MATERIAL TESTING LABORATORIES
Certified and in Accordance with terms and conditions
on the reverse side of this document.

SIGNATURE

VZ-12
Flight Research Program
LFP Fan Design Engineering

DRB Report # _____
Page _____ of _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____

Part Name PITCH FAN MOTOR Drawing Number C-14807-145 Serial Number _____

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FAC Inspector's Name C. HARRIS Date 12/11/64

Quantity Inspected - 1

[illegible]

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012001-14561 BUCKET CARRIER

NUMBER OF PIECES 18

FLUORESCENT PENETRANT SPEC. PS0710A

INSPECTOR E. H. Haggard 12-16-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

S/N 17, 21, 025, 31, 16, 41, 13, 34, 20, 22, 30, 10, 023,
52, 05, 27 & 007, & 08

All carriers have indications.

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER ~~36~~ 4012001-171 B/C per

NUMBER OF PIECES 36

FLUORESCENT PENETRANT SPEC. PS0710

INSPECTOR C. Wagner 12-14-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

S/N not legible - No Indications

VZ-11
Flight Research Program
LFP Fan Design Engineering

DRB Report # _____
Page ____ of ____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____
 Part Name 30-100-10 Drawing Number 30-100-10 Serial Number 30-100-10
 Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
 Vendor 30-100-10 Inspector's Name 30-100-10 Date 30-100-10

Quantity Inspected -

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engg. _____ Date 12/16/01

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

SN 003 *Jeanderson #2 B/U*

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER *4012001-170P1 - B/c Bolt*

NUMBER OF PIECES *54*

FLUORESCENT PENETRANT SPEC. *PSOT100*

INSPECTOR *E. Wagner* *12-16-62*

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

125 Indications

Original Order No.

DRB Report #

Page 1 of 1

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name 25 A/C Drawing Number 55-57 Serial Number 0-1540

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FCB 1951 Inspector's Name W. H. H. H. Date 12-1-61

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. Date / 2 / 2006

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust.Serv.
VZ-11 Project

Original Order No.

DRB Report #

Page 1 of 1

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name 700-100-100-100 Drawing Number 100-100-100 Serial Number 100-100-100

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor Inspector's Name Date

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 1

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. James D. Jones Date 12/16/12

Approval: LFP Design Engineer _____ Date _____

Re-work Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

J/N 003 T/D # 2

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ Torsion Bands

PART NUMBER 1012001-154

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50712

INSPECTOR E. Wagner

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

~~NOTARY PUBLIC~~

MY COMMISSION EXPIRES _____

GENERAL ELECTRIC COMPANY
DPB ACTION

VZ-11
Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

S/N 003 T/D #2

Original Order No. _____

DRB Report # _____
Page ____ of ____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____

Part Name T-113 CHARGER Drawing Number 401203-129P1 Serial Number _____

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FRY TEST Inspector's Name L. HARRIS Date 12-16-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 18

Zone	B/P Dimension	Checks	Disposition
		10 PPS SHOW SPARKING	
		WHEEL & HOUSING	
		7 PPS SHOW NORMAL SPARK	
		1 PPS Locked in Bend Frame	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required: Yes No

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. Logeoc Sain Date 12/16/62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

S/N 003 Machine #2 S/O

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER _____

PART NUMBER 4012001-169P1 — TAB

NUMBER OF PIECES 18

FLUORESCENT PENETRANT SPEC. PSCT10

INSPECTOR C. Wagner 12-16-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No Indications

DEB ACTION

Flight Research Program
LFP Fan Design Engineering

LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

DRF Report # _____
Page _____ of _____

Original Order No. _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name Pin 15741002 Drawing Number 4012001-171 Serial Number

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FRV TEST Inspector's Name E. HUNT Date 12-16-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrs. Aug - Bin Date 12-16-62

Approval: LFP Design Engineer _____ Date _____

Rework Order # Shipping Notice #

GENERAL ELECTRIC COMPANY
DRB ACTION

VZ-11
Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

S/N 3 T/D #2

DRB Report # _____
Page 1 of 2

Original Order No. _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____

Part Name PURE FAN Drawing Number 1013001-100 Serial Number 003

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FIRV TEST Inspector's Name E. HUNT Date 12-17-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 1455

Zone	B/P Dimension	Checks	Disposition
		Area at 10 o'clock wrinkled	
		inner skin	
		Sawtooth broken at 12:30	
		Bugle indication as	
		marked in red.	
		Crack on lower leading	
		edge	
		nick and hole in blade	
		vane	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required: Yes No

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. _____ Date _____

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

GENERAL ELECTRIC COMPANY
DRB ACTION

VZ-11
Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

Original Order No. _____ DRB Report # _____
Page ____ of ____
☐ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____
Part Name _____ Drawing Number _____ Serial Number _____
Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
Vendor _____ Inspector's Name _____ Date _____

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

Zone	B/P Dimension	Checks	Disposition
		<i>nick in turbine vane</i>	
		<i>HOLE THROUGH SKIN 11:00 O'CLOCK</i>	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification
Required: Yes No
Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV
Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. _____ Date _____
Approval: LFP Design Engineer _____ Date _____
Rework Order # _____ Shipping Notice # _____

S/N 003 T/D #2

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ REAR FRAME

PART NUMBER 4012001-600

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. SPOT 2/640

INSPECTOR [Signature]

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

Indications marked in red
[Signature]

Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

DRB Report # _____
Page 1 of 1

S/n 003 7/0 #2
Original Order No. _____

☒ Lift Fan ☐ Pitch Fan ☐ Diverter Valve ☐ Other _____ Page 1 of 1
 Part Name INSPECTION BLKF Drawing Number See below Serial Number _____
 Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
 Vendor FRV TEST Inspector's Name C. HART Date 12-10-64

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

[illegible]

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification
Required: Yes No
Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV
Remarks:

Verification of Discrepancy: LFP Quality Control Engg, Shah Baid Date 12/16/62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

INSPECTION CERTIFICATES

PITCH FAN

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER FRONT FRAME

PART NUMBER 4012001-30362

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. SPOT 24660

INSPECTOR 

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ MOUNT

PART NUMBER 4012001-373 G1

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50T10

INSPECTOR Roguer Gairin

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ MOUNT

PART NUMBER 4012001-37392

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50T10

INSPECTOR Roger C. Baird

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ MOUNT

PART NUMBER 4012001-37393

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50T10

INSPECTOR Roger C. Baird

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ MOUNT

PART NUMBER 4012001-32961

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50710

INSPECTOR Roger C. Binn

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER MOUNTS

PART NUMBER 4012001-35343

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. P50T1c

INSPECTOR Logan C. Bann

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ SUPPORT ARM

PART NUMBER 4012001-62641

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. P50710

INSPECTOR Roger C. Gair

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1967.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ Support ARL

PART NUMBER 4012001-62761

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. P50710

INSPECTOR Roger C. Brinn

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ GLCVIS

PART NUMBER 4012001-27561

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. PSCT10

INSPECTOR Reginald Bain

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ Q-15413

PART NUMBER 4012001-47691

NUMBER OF PIECES 2

FLUORESCENT PENETRANT SPEC. P50710

INSPECTOR Raymond E. Smith

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER DISC

PART NUMBER 4012001-17751

NUMBER OF PIECES 1 Pcs

FLUORESCENT PENETRANT SPEC. SPOT 2-1660

INSPECTOR [Signature]

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

VZ-11
Flight Research Program
LFP Fan Design Engineering

DRB Report # _____
Page ____ of ____

☐ Lift Fan ☒ Pitch Fan ☐ Diverter Valve ☐ Other _____
 Part Name ROLLER BEARING Drawing Number 102201-349P1 Serial Number E-7
 Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____
 Vendor PRV TEST Inspector's Name E. HUNT Date 12-16-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 112

[illegible]Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control. Engr. *[Signature]* Date *12-16-62*.

Approval: LFP Design Engineer Date

Rework Order # Shipping Notice #

VZ-11

Flight Research Program
LFP Fan Design Engineering

S/N 001 T/D #2

Original Order No.

DRB Report # _____
Page 1 of 1

☐ Lift Fan ☒ Pitch Fan ☐ Diverter Valve ☐ Other

Part Name 602152 5242 Drawing Number 4012001 335 Serial Number

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FIRV Inspector's Name L. H. H. H. Date 12-15-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected -

[illegible]Disposition: ☐ Accept ☐ Reject ☒ Other (see remarks) Quality Verification

Required:	Yes	No
-----------	-----	----

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engr. Luigi C. Ben Date 12-16-62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ BLADES

PART NUMBER 4012001-17541

NUMBER OF PIECES 36

FLUORESCENT PENETRANT SPEC. PSDT10

INSPECTOR Regis C. Quinn

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

Ser # 001 T/O # 2

Original Order No. _____

DRB Report # _____
Page 1 of _____☐ Lift Fan ☒ Pitch Fan ☐ Diverter Valve ☐ Other _____Part Name BUCKET CARRIERS Drawing Number 2012001-1736 Serial Number See below

Next Higher Assy. Name _____ Drawing No. _____ Serial No. _____

Vendor FIRV TEST Inspector's Name E. HART Date 12-17-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 18 PCS

Zero	B/P Dimension	Checks	Disposition
	Ser # 007	DENT CV Side Bucket # 11	
	Ser # 008	WLT Removed during TEAR down	
	Ser # 044	SECTION OF SPROUD BROKEN BETWEEN	
		BUCKETS 4 & 5	
	Ser # 039	SECTION OF SPROUD BROKEN OFF	
		BETWEEN BUCKETS 2 & 3 and 3 & 4	
	Ser # 047	DENT LEADING EDGE CV Side Bucket # 2	
	Ser # 041	" TRAILING " " " " # 13	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required: Yes No

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engr Page 4 Bon Date 12-17-62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ BUCKET ENRIKERS

PART NUMBER 4012001-17361

NUMBER OF PIECES 18 pcs

FLUORESCENT PENETRANT SPEC. R50710

INSPECTOR Roger C. Brown

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER CARRIER BELTS

PART NUMBER 4012001-184

NUMBER OF PIECES 36

FLUORESCENT PENETRANT SPEC. P50T10

INSPECTOR E. M. Moyer

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

PURCHASE ORDER TORQUE BAND

PART NUMBER 40120 1-17461

NUMBER OF PIECES 1

FLUORESCENT PENETRANT SPEC. PSOT 10

INSPECTOR Collins 12-28-62

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

GENERAL ELECTRIC COMPANY
DRB ACTION

VZ-11
Flight Research Program
LFP Fan Design Engineering

DISTRIBUTION
LFP Quality Control
Vendor
Fan Design Engrg.
LFP Materials
Evaluation & Cust. Serv.
VZ-11 Project

Seq # 001 T/D # 2

Original Order No. _____

DRB Report # _____
Page 1 of 1

☐ Lift Fan ☒ Pitch Fan ☐ Diverter Valve ☐ Other _____

Part Name REAR FRAME Drawing Number 4012001-30351 Serial Number 001

Next Higher Ass'y. Name _____ Drawing No. _____ Serial No. _____

Vendor FIRV TEST Inspector's Name E. HART Date 12-13-62

Description of Deviation (State specifically how part deviates from drawing)

Quantity Inspected - 1/1554

Zone	B/P Dimension	Checks	Disposition
		SEVERAL VANE'S ARE DENTED	
		5 SHROU'S CRACKED ON FLOWING	
		1 CRACK IN SQUARE TUBE AT	
		4:30 POSITION	
		24660 AFTER RUN - NO INDICATIONS	

Disposition: ☐ Accept ☐ Reject ☐ Other (see remarks) Quality Verification

Required: Yes No

Part Classification: ☐ Class I ☐ Class IA ☐ Class II ☐ Class IIA ☐ Class III ☐ Class IV

Remarks:

Verification of Discrepancy: LFP Quality Control Engrg. Ref Bunn Date 12-16-62

Approval: LFP Design Engineer _____ Date _____

Rework Order # _____ Shipping Notice # _____

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ REAR FRAME

PART NUMBER 4010001-30341

NUMBER OF PIECES 1 ASSEMBLY

FLUORESCENT PENETRANT SPEC. SPOT 2 1/4 10

INSPECTOR Logan C. Gair

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

No INDICATIONS

LSB ACTION

Flight Research Program
LFP Fan Design Engineering

VZ-11 Project

Vendor FIRV TEST Inspector's Name E HART Dc. 12-13-62

-123-

CONFORMANCE CERTIFICATION

The General Electric Company, Cincinnati Aircraft Service Shop, hereby certifies that all parts indicated below have been fluorescent penetrant inspected by us and conform to all specifications indicated on the drawing, government specification, or as called for on purchase order.

~~PURCHASE ORDER~~ SUPPORT

PART NUMBER 4012051-35061

NUMBER OF PIECES 8

FLUORESCENT PENETRANT SPEC. PSGT10

INSPECTOR Logan C. Brown

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF
_____ 1962.

NOTARY PUBLIC

MY COMMISSION EXPIRES _____

APPENDIX



Figure II-67. Pitch Fan Ducts

- A. Thermal Buckles (C 2110014)**
- B. Buckling After Center Duct Guide Post Grew Out Of Guide Slot And Prevented Return To Nominal Position At Shutdown (C 2110105)**

Note: Inspection After 29 Hours



Figure II-68. Crossover Duct
Internal View After 29 Hours Operation (C 2110108)



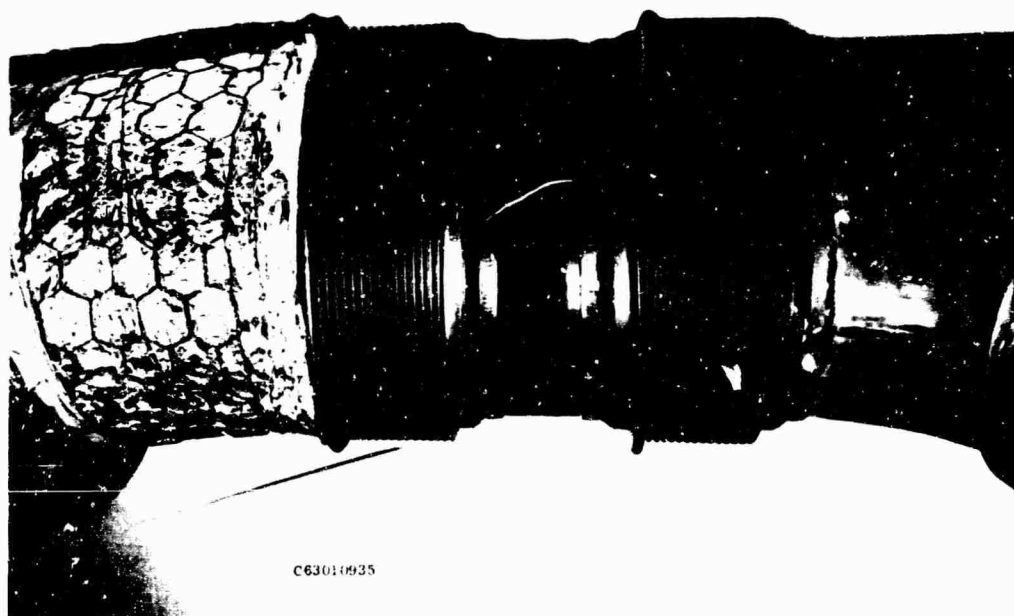
Figure II-69. Cross Duct
Bellows Distortion (After 29 Hours) (C 2110107)



Figure II-70. Cross Duct
Crack In Weld Affected Area (After 75 Hours)
Repaired In Place (C 2121033)



C63010934



C63010935

Figure II-71. Twist Buckle in .010" Pitch Fan Duct #2 At Pitch Fan. Noted After 78 Hours Of Test Installation Prevented Identifying Actual Time Of Incident

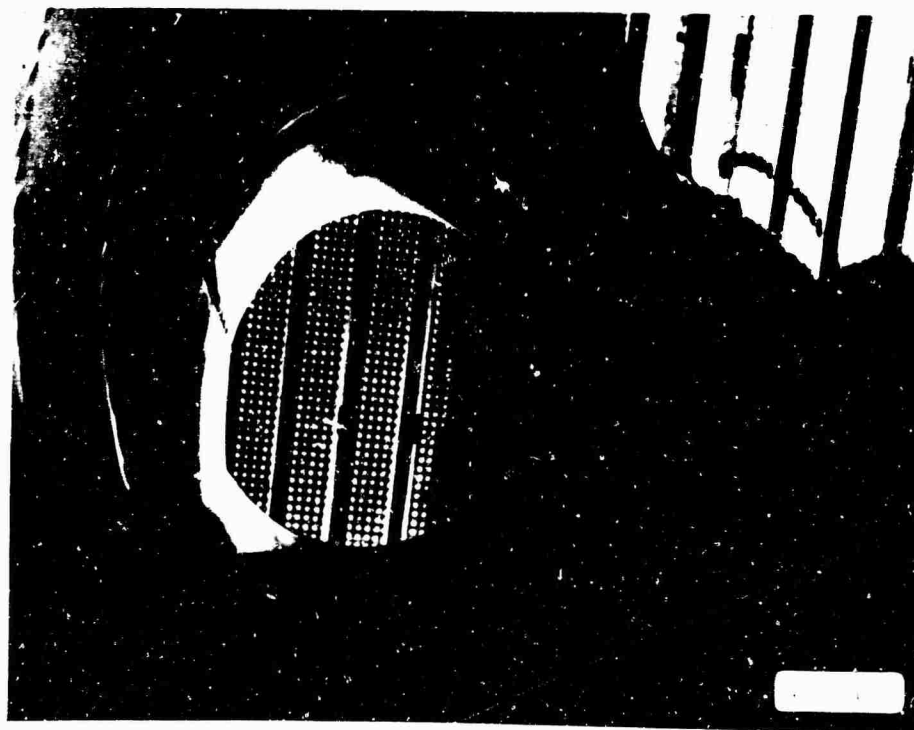


Figure II-72. Two Cracks In Crossduct #2 In Weld Affected Areas. Noted After 78 Hours of Test. The Bottom Picture Another View Of One Of The Cracks